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GLEANINGS IN **BEE CULTURE** A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS ILLUSTRATED SEMI-MONTHLY Published by THE A. F. ROOY CO. \$1.00 PER YEAR MEDINA, OHIO.

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No. 17.

STRAY STRAWS FROM DR. C. C. MILLER.

ON THE MORNING of August 18 I saw a bee here and there on buckwheat, with the thermometer at 58°. At 61° the bees were thick on it.

J. A. BUCHANAN, p. 589, has customers who always eat a dollar's worth of honey before it candies. Now, is that because his customers are so fast at eating, or because his honey is so slow at candying? [Probably both.—ED.]

A MANUFACTORY of printers' rollers informs me that they use a considerable quantity of extracted honey in their business, but require the pure article, and prefer white clover or basswood. Under no conditions will buckwheat honey do.

IS IT NOT just a little inconsistent to charge with hostility, and trying to get the funds of the old Union, those who have advocated amalgamation? Why, I think most of them are members thereof, and one is not generally hostile to himself.

THE GROOVED BELLOWS-BOARDS for smokers will allow the use of a lighter spring, making it much easier on the muscles of the hand. [That is so. I never thought of it. For 1898 we will bear the fact in mind, and endeavor to have the tension of the springs slightly reduced.—ED.]

IT'S SURPRISING, considering the times and all the circumstances, that the new Union should already have a membership of 175, with a still continued up-grade tendency. [The new Union is growing at an astonishingly rapid rate. If it keeps on growing it will soon be bigger than its elder sister.—ED.]

SMOKER FUEL, like so many other things in bee-keeping, is somewhat a matter of "location." It isn't so much what is best as what is most convenient. One of the most generally convenient, and at the same time one of the best, is the small chips about any woodpile. For a sharp, telling smoke, lasting as well, I know nothing better than sound osage-orange wood.

WITHIN TWO RODS of my home apiary is a field of buckwheat on which bees have been working some days. They work a short time early in the day, but I can see no buckwheat honey in the hives, neither is there any buckwheat smell either about the hives or in the field until this morning, Aug. 18, when the air about the field is well perfumed.

FALL HONEY is usually darker than the earlier; but at my south apiary this year, and to some extent last, the rule is reversed. For two or three weeks the bees have been filling sections with the whitest comb and honey, I think, I ever saw—much whiter than clover, and of excellent flavor, as mild as alfalfa. The sad part of it is, I haven't the slightest idea what it comes from.

"IN AN APPLE ORCHARD where the trees are so large and the branches so long that the twigs can shake hands with one another is an ideal spot for an apiary."—*Bee-keepers' Review*. Just the idea, and nicely expressed, W. Z. But my south apiary has something I like even better—a grove of young burr-oaks. No, burr-combs are no worse there than in the other apiaries.

THAT ITEM, "Big Colonies, Again," p. 604, gives something to think over. With two stories I can have whopping big colonies that store enormously in combs and never think of swarming; but somehow I can't make a success of having them work in sections. Is it possible that I can make the thing go by first starting them on extracting-combs and then switching off on to sections? Just wait till next year.

I WANT TO INDORSE what you say, friend A. I., page 607, about giving young folks plenty of sleep. The time gained in 24 hours by taking it from sleep will have to be paid back in later years with interest severely compounded. And when one gets on the shady side of 50, I know of nothing more refreshing than "tired nature's sweet restorer, balmy sleep." As Sancho Panza said, "Blest be the man that invented sleep!"

WORKERS reared in drone-cells, as mentioned by Elias Fox, p. 599, is a more common occurrence than generally supposed. More than 20 years ago I saw workers hatch from

drone-cells in a piece of comb sent by R. R. Murphy to the *American Bee Journal*. The queen may control the sex of the egg by her will; but the case you cite is no proof of it, friend Fox, for I think you will find that, before the queen laid in the cells, the workers laid a heavy rim of wax, making the mouth of the cell as small as that of a worker-cell.

IT ISN'T EASY to get up any rules for grading that will be satisfactory. Too much wording is bad, but too little may be worse. Editor Hutchinson wants every thing short and simple, but on the same page says he "would not have any pollen in a fancy grade of honey, and not more than half a dozen cells in a section of the second grade." Now, how are you going to have any thing of that kind carried out unless it is "so nominated in the bond"? [If the Buffalo convention does not adopt some set of rules, I propose to adopt something for GLEANINGS. The grading-rules that we have been using till lately were, as I understand, far better than nothing. But I believe I can improve on them after all that has been said and written, and I shall certainly make the attempt if the Buffalo meeting does nothing.—Ed.]

LOOK HERE, Ernest; those glucose-men are not fools, but sharp business men. No matter how solid the trust, they're not going to put the price where it will prohibit the use of glucose as an adulterant. Not the greatest profit per pound, but the greatest aggregate profit is what they're after, and that depends on the great amount sold rather than on the price per pound. [Yes, I am well aware that the glucose-men are shrewd; but sometimes shrewdness gives place to folly, and I was in hopes they might be so very "smart" that they would put the price of glucose up high enough so it would not make such inroads on honey. The very object of the trust is to put up the price; and even if they shove the price up only a little bit it will make it just that much less profitable to put it into honey. Extracted honey is coming down, or has been; and if glucose goes up, there will be less adulteration than formerly.—Ed.]

WOULDN'T I LIKE to have been at that picnic of the Root employees! A number of nice people among them I'd like to see again. Say, Ernest, why don't you give us a picture of them? [Yes, indeed, and we would have counted you as one of us. We made up a train of seven coaches and a baggage-car. On either side of the train was a mammoth sign, painted on canvas, with the wording, "The A. I. Root Co. Employees;" and on the pilot of the locomotive was a beautiful yellow queen-bee carved out of wood, about a yard long, with wings spread, ready to lead our big swarm in its flight to pastures new. The carving was done by Mr. Karl R. Mathey, who is still in our employ. The queen was richly painted, and decorated in gold. If she had not been such an awkward thing to carry we would have taken her to the Buffalo convention, and had her suspended in midair in the convention room.

Well, the picnic was a grand success in every

way. Nearly every seat in the train was filled with people, the great majority of whom were those who receive their bread and butter from the A. I. Root Co.'s pay-roll. Just before the train started I had the ever-ready Kodak; and after I had taken several shots the conductor called out, "All aboard!" and the train soon steamed into Cleveland. Arriving there we all piled into a lake steamer, and after an hour's ride we found ourselves at Euclid Beach Park.

We expect to make this shop picnic an annual affair. Ere another year rolls by we shall hope that Dr. Miller and a good many more of our bee-keeping friends will accompany us to some beautiful spot in fair Ohio.—Ed.]

DRAWN FOUNDATION doesn't show the advantage I expected over ordinary foundation. As to eating qualities it's all right, and I can't help thinking that the war that has been waged against it without knowing any thing about it is the maddest, blindest, silliest piece of folly that has occurred in the ranks of bee-keepers for some time. [There is only one other besides friend Doolittle (see editorials) who has reported the eating quality of honey from drawn foundation as not being equal to that of the ordinary comb honey. While I do not in the least doubt Mr. Doolittle's statement, I believe that, in the great majority of instances, the eating quality of the new product will be up to the required standard. It certainly has been in our own various tests at Medina, and with Dr. Mason.]

You and Mr. Doolittle probably tried the drawn foundation and common foundation in alternation, as we advised. We have since discovered that this is hardly a fair test. Half of the supers should be filled with one kind, and the other half with the other sort. When the two lots are placed in alternation, the bees seem to feel that the foundation must first be pulled out to equal the drawn foundation; for it is contrary to their notions of hive architecture to have every other comb in the super or hive drawn out and the others neglected. They must all be drawn out in one portion of the hive, at least, together. We have found it to be true that, when the pieces were placed in alternation, in some instances there was no practical difference; but when the super was divided in halves, there was a difference in favor of the drawn foundation, the latter being accepted and filled with honey, while the common foundation in the other half was almost neglected. For instance, before me is a super that had been prepared in "halves," as above explained. The sections of one outside row, having had foundation in them, show the following weights after the season was closed and the weight of sections when removed from the hive: 1 oz., 4 oz., 7 $\frac{1}{4}$ oz., 7 $\frac{3}{4}$ oz. The sections in the opposite outside row had drawn foundation. These are the respective weights: 12 $\frac{1}{2}$ oz., 13 $\frac{1}{2}$ oz., 13 $\frac{3}{4}$ oz., 13 $\frac{1}{2}$ oz. The other sections having the drawn foundation were finished sooner, and are fatter and heavier than the corresponding sections from common foundation. In relation to the same point, R. F. Holtermann, of the *Canadian Bee Journal*,

writes: "My own test of the deep cell goes to show they accept it much more readily than other foundations. I put one section in the far corner of the hive where they are less likely to fill it, and this was built out much farther than the sections near the center. They take next best to the 11-square-foot-to-the-pound new process."—ED.]

THE BEE-KEEPERS' UNION, ONCE MORE.

An Interesting and Valuable Article.

BY PROF. A. J. COOK.

I am reluctant to speak further upon the above subject; but Mr. Newman's letter in July 1st GLEANINGS, and the importance of the subject, impel me to a further word.

I am very sorry if I misquoted Mr. Newman, and even more sorry if I misrepresented him. I have had high appreciation of his services, and have had only the kindest feelings regarding him. I am sure I need not say that any thought of antagonism to him has never been in my mind.

HISTORY.

In the last vote, I believed (and I think many others did) that we were voting only on the question of amalgamation. I voted no—not that I was opposed to amalgamation *per se*, but only because I felt that many of the members were, and that we should not force the change upon them. It seems to me to-day that this was a correct position. Others thought the Union should not be tied to the National Association, or at least that such a marriage would not be wise, and hence the large vote against amalgamation. I did not suppose the failure to amalgamate would result in the formation of two Unions; but, the rather, if the marriage was not consummated, the old Union would lock horns with adulteration—would hitch on its whole force to aid co-operation, and would eagerly grasp any lever that would help to raise bee-keeping to a higher plane of success.

THE STATUS TO-DAY.

Amalgamation was lost. We have two organizations, kindred in their general plan and make-up, requiring the same machinery for their work—the one tied, possibly by vote of its members, though I am not sure of that, but certainly by the views of its manager, to one limited, and, as it seems to me, rather unimportant line of work at the present time; the other, ready to attack any evil that really threatens the life or welfare of our industry. What a chance the old Union is losing now in not marching against adulteration here in California, where every thing would favor success! We have a good law, manager on the ground, and public sentiment all on our side. We could almost certainly have won a grand success, and secured a precedent that would have been as powerful for good as the Arkansas court decision gained previously by

the Union. It seems to me that, in case we could not constitutionally grapple with this foe at this opportune time, we should have taken steps at once to secure the right and power to do so.

THE FUTURE.

I fully believe that we can afford but one organization. This seems so axiomatic to me that I believe the bee-keepers generally will concur. As the new Union seems more broad in its scope, more alive to the needs of bee-keepers, more ready to attack the enemy in whatever form he may take, I believe it wise to merge the old Union into the new. So far as I have heard expression, this seems the growing opinion.

I wish I could be at Buffalo to join in a calm, dispassionate consideration of the whole subject. Surely, the discussion should come, and the matter of a second submission to vote be carefully weighed. I presume a large number of the members, and a goodly proportion of the officers of the old Union, will be present, and I hope that they will make themselves heard.

CO-OPERATION.

Southern California is now struggling with the subject of a "Bee-keepers' Exchange." The organization is on foot. A goodly number of bee-keepers have joined its ranks, and it has already done good service in securing to its members reduced prices on their supplies. It now remains to be seen whether it will be able to secure a better market than could have been had if it had not been formed. We hope and believe it will succeed in this respect, and, what is quite as important, that it will be able to convince bee-keepers, whether in or out of the association, that it has done so. Apparent as well as real success is needed. The "Citrus Fruit Exchange" proves conclusively that co-operation is the greatest need of agriculturists in all lines. It is almost universally admitted that the "Fruit Exchange" has been a signal success, and a great boon to the pomology of Southern California; and yet this important organization has been handicapped because so many held aloof. Farmers are all unused to such methods; are suspicious of them, and will not easily be convinced that they are necessary, safe, and desirable. Will bee-keepers be any more ready to co-operate? I have had great hopes of the bee-keepers, as I think they are a very intelligent class; they nearly all read and think, and it would seem that most have had experience that would lead them to think favorably of co-operation. Such methods promise immense advantage, and so are sure to come in time. Just how soon is a very important question. The success of the Fruit Exchange has resulted in far better grading and packing, at a reduced expense; has lessened cost of transportation; has secured better prices, and, perhaps, best of all, has developed new markets, and arranged such intelligent distribution that any single market is seldom glutted because of a rush of fruit into it. Such a rush into New York or Chicago is ruinous to prices the country over. I believe

a good bee-keepers' exchange could accomplish as much. I hope and believe that the time will soon come when the bee-men and fruit-men will unite forces, for the agents east could as well develop a market for both commodities as for one, and at the same time.

One of the chief objections to such a system is the fact that many are poor, and need ready money before the close of the season, and can realize on a prospective crop with a local dealer. The Bee-keepers' Exchange has arranged, as we are informed, to partially remedy this evil this season; and it is certain that, to realize on a coming crop in the usual fashion, is always very expensive. Such loans are secured at an enormous interest. I believe we all ought to write, talk, and work for the exchange system. Such methods in rural pursuits are so new and strange that we must patiently await their development. Perfection can not come at once. Mistakes must be made. The greatest difficulty is to find able, experienced business men who will work unselfishly and earnestly for the Exchange. The fruit-men are succeeding in this, we think, and are winning a success that is fast gaining the confidence of the fruit-growers. Their success will bring confidence to the bee-keepers as well. We believe that the bee-keepers here have been very fortunate in their choice of men to man the Exchange. We hope that the bee-keepers will rally more and more to its support.

NOTES.

I was interested in the note in Aug. 1st GLEANINGS regarding color of queens, drones, and workers. We have selected simply for color in workers, and hence the want of uniformity in the color of queens and drones. If it is necessary we can soon breed to uniformity in queen and drones; but is it? I have always believed that color in workers should be considered secondary in importance. The main thing is to develop a business bee, and color should be considered only to gratify a love of the beautiful, and to aid us to secure a proper label.

I agree with you regarding glucose. While possibly "vile stuff" may be too strong, yet an article that is often unwholesome, that is almost always used for evil purpose, and that actually injures many of our staple articles of commerce, should certainly be denounced. The editor of the Los Angeles *Times*, in to-day's issue, speaks of a new "glucose-factory," and adds that means more honey (?), pure (?) syrup, etc. The real character and standing of glucose is everywhere well known. There is no need of our speaking its praise or defending its character.

The article of Mr. Sladen, on *Apis dorsata*, is excellent. I am surprised that its tongue is so little longer than that of the *A. mellifica*. Its size is certainly against it. The larger insects are always more logy and inactive. Our common bees are surely about typical in size among insects. It is more than likely that *A. dorsata* would be a failure with us. This is why I have always urged that government should import it. I do not think private

parties should be asked to undertake such enterprises as *may* bring signal advantage, but *usually* result in no improvement. We must keep trying to secure the occasional prize, like the navel orange; but the trials should be made by government, not by any one man. If individuals wish to do such work, well and good; but it is often unwise for government to wait for them. The same logic holds for experimental research, which all the most civilized governments now foster.

I was specially glad to read Mr. Doolittle's article on clipping queens' wings. I can remember when I was almost alone in its advocacy. There is another advantage not mentioned by Mr. Doolittle. An apiarist can leave his apiary at swarming time in the care of wife or child, and go to other work. The one in charge has only to cage the queen and note the hive; and when the bee-keeper comes at noon or night he can attend to the bees. I have often known farmers to manage quite large apiaries in this way.

It is gratifying to note that common advice and legal enactments now say, "*Never* spray until the blossoms fall." Recent discoveries regarding egg-laying by the codling-moth make the delayed spraying all the more reasonable. It is folly, aside from the bees, to spray before the blossoms have all fallen.

The article on page 493, regarding cane sugar, I think contains several errors. I wish it might be submitted to Dr. Wiley for a review. I think the cane sugar in the nectar, in the honey, on the table—everywhere,—is the same, only in different form, just as the salt in the ocean and in the salt-dish are the same.

Long Beach, Cal., Aug. 5.

[The scheme of the California Bee-keepers' Exchange is most admirable, and should be most heartily encouraged. GLEANINGS will gladly do any thing that will help it along.

The new Bee-keepers' Union is progressing finely, and already has a membership of 175; and indications are that it will surpass in membership and funds the old Union. Whether it does or not, the old and the new should be combined—or, if you please, amalgamated. Economy and cool business sense both urge it. I am in hopes that the Buffalo meeting will produce a constitution that will be acceptable alike to the members of the old and new Union.

Regarding *Apis dorsata*, permit me to offer this suggestion: The A. I. Root Co. will be to no very great expense to start on, and may, for a very small sum, be able to secure *dorsata*. If it fails, then there will be time to advocate the use of Uncle Sam's money. We shall probably know within a year what we can do. I expect to make up this afternoon a list of hives and implements necessary to equip Mr. W. E. Rambo, so that he can properly test *Apis dorsata* and other species of Indian bees.

Regarding the article on cane sugar, p. 493, I respectfully submit it to its author. In the mean time I have sent a copy containing the article to Prof. Wiley himself.—Ed.]

IMPORTANT ITEMS.

Pettit's System of Producing Comb Honey; Monnier's Cure for Bee-paralysis a Success.

BY EARL C. WALKER.

During the honey season which is just drawing to a close I have given Pettit's plan of taking comb honey a trial, in part. I consider the scheme of placing wedge-shaped pieces of wood under the sides of the hive, thus causing the bees to distribute themselves to the sides and back end of the hive, the most valuable feature of the system. By this means the bees with their loads of honey are sent directly to the outside sections, which will be filled as soon as those in the center of the super. Instead of sawing out wedge-shaped pieces of pine, as described by Mr. Pettit, I simply get some ordinary shingles, which taper down to a thin edge, and split them up into strips $\frac{7}{8}$ inch wide. These are placed under the sides of the hives, as directed by Mr. Pettit. This not only causes the bees to fill the outside sections, but gives abundant ventilation, which is so necessary in the hot summer months. I had several colonies that seemed determined to hang out and loaf. I placed the strips of shingles under the edges of the hives, and the bees quit loafing, and went to work in the sections. One of these gave a surplus of 72 lbs. of comb honey. I will keep the strips under the hives until winter, for ventilation.

MONNIER'S CURE FOR BEE-PARALYSIS.

I have cured several cases of bee-paralysis this season by running healthy swarms into hives containing affected colonies. The healthy bees would at once attack the diseased ones, and carry them off. In most cases I let the diseased bees swarm, and then the next healthy swarm that issued I ran into the hive out of which the diseased swarm came. The diseased swarm I ran into a hive out of which a healthy swarm had issued. The disease has entirely disappeared. All that seems to be necessary is to mix a diseased and a healthy colony together, and the bees do the rest. The scheme of uniting diseased colonies to cure paralysis was given in GLEANINGS on page 447, and I used the above method of putting it into practice. All bee-men should try this cure, and report the result. Mr. Monnier, who discovered this, deserves a vote of thanks from all bee-keepers. When I read his article, I, like you, Mr. Editor, had my doubts about its being a certain cure. But I have tested it for myself, and am positive that it is a sure cure. Try it and see.

A COMMON MISTAKE IN TRANSFERRING.

A great many bee-books, in giving directions for transferring, advise the use of a driving-box of the same size as the box hive to be transferred. For example, Mr. F. Benton, in *The Honey-bee*, p. 72, says, "Invert the hive, and place over the open end an empty box, or the frame hive itself, making whichever is used fit closely on the hive (Fig. 53). He emphasizes the importance of having the driving-box fit closely, by a half-tone engraving. Now, I have transferred a great many bees, and I be-

lieve it is entirely unnecessary to have the driving-box fit snugly over the end of the box hive; in fact, if the weather is at all warm it is quite an advantage to have the driving-box some larger than the box hive. The bees run up into the driving-box more readily if it is large enough to project a few inches over the sides of the hive, thus giving plenty of ventilation.

THE HIGGINSVILLE COVER.

The Higginsville cover has not proven as satisfactory with me as the old flat cover used on the Dovetailed hive a few years ago. It warps, leaving a crack along the top edge of the hive where the cover and the hive-wall meet. Besides, it is too thin for winter where the bees are wintered in single-walled hives. The space left by the cover warping allows the escape of heat from the cluster, and this causes a draft through the hive. I have been testing the new gable cover, and so far find no fault with it. By using it, shade-boards can be dispensed with; and in the winter the space can be closed, thus making an air-space above the cluster.

New Albany, Ind.

[I wish others would try this new cure for bee-paralysis. The fact that it has worked successfully in two cases is very encouraging.—Ed.]

REPORT ON TUNIS AS A HONEY-PRODUCING COUNTRY.

BY THOMAS B. BLOW.

[We take pleasure in presenting to our readers a portion of the report of Mr. Thomas B. Blow, of England, made to the Tunisian government, North Africa. The parts omitted refer to the size of frame best suited to that country, and the probable profits of the industry.—Ed.]

To the Department of Agriculture, Regency of Tunis:—I have the honor to report that, during the past two months, I have given great attention to the question of apiculture in Tunis. So far as I have seen, there are certain parts of Tunis that are, in my opinion, absolutely without equal in any part of the world for their capacity to produce large quantities of honey. These districts are the hills, on which grow vast quantities of rosemary (*Rosmarinus officinalis*), heath (*Erica multiflora*), and many other honey-producing plants. Of such districts I imagine Tunis possesses some millions of hectares, and in the greater portion the honey is absolutely wasted for want of bees to collect it. Not only can honey be produced here in great quantity, but the quality is also superb; in fact, there can be no finer honey than that produced during the winter and spring months from the heath and the rosemary. The climate is well suited for apiculture, for the bees are able to work a great portion of the time that these plants are in flower (there being no winter in the sense we understand it in Europe). The heath and rosemary commence to bloom in November and December, and continue till March or April, and during these months the bee-keeper is assured of an ample harvest. Later comes

Calicotome villosa, *Thymus Numadicus*, and other species of *Thymus*, several species of *Cistus*, and many other honey-yielding plants; so that, in fact, there is a good harvest from November till May, which is quite a long period, especially when we consider the great abundance of the honey-yielding flowers during the whole time.

It must be borne in mind that every pound of honey collected is so much clear gain to the national wealth of a country; for, if not collected by bees, the honey is absolutely wasted. Fruit-growers and owners of almond-orchards should remember, too, that greatly increased crops of fruit are obtained if there are ample bees kept to insure efficient fertilization of the flowers.

The bees of Tunis are very hardy, good workers, and are all that can be desired for the country, and I strongly recommend that the introduction of foreign bees be not attempted; and in view of the fact that the bees here, so far as I have seen, are free from the disease called foul brood (which has caused, and is still causing, such havoc with the bees of Europe), I advise that the most stringent measures be taken to absolutely prohibit the importation of any foreign bees, as the risk of the disease being introduced thereby would be very great (it being very widespread in Europe).

The Chalet, Welwyn, England.

WALKER'S GRADING-RULES CRITICISED.

The Rules too Flexible, and Why.

BY B. F. ONDERDONK.

Friend Root:—I have been reading Mr. Walker's grading-rules, and, after much thought and perplexity, have come to the conclusion that they do not grade. As I understand the word, "fancy" means appearing extra well. I fail to understand how a section with a row of unsealed cells next the wood can fill the requirement of "fancy," to say nothing about "extra fancy" allowing this defect; then his "fancy," "slightly fastened to or detached from the bottom," and "*two cells may contain bee-bread*" (italics mine). I grade his extra fancy for my own trade as No. 1; his fancy as No. 2, except as to the bee-bread, a section containing which I never offer for sale, but exclude it entirely from the grading.

Fancy, with me, must not have more than four unsealed cells on any one side of the comb, and unsoiled. No. 1 may have one row of cells next the wood unsealed, and two or three rows at the bottom; no section to weigh less than 13 oz.; and very little amber honey in with white. No. 3, or fourth grade, may have two rows of unsealed cells, top and sides, bottom detached; and weight, 11 to 12 oz., goes to the peddler at 10 cts., regardless of color, comb, or honey. Lighter weights go back on the hives to finish if a flow is on, or clear out if bees need it.

Mr. Walker says, "No. 2 like No. 1, but

combs may be more crooked and uneven (*sic*), and not over three-fourths filled; but any one section must weigh half as much as the heaviest section in the case." To say nothing about his supplementary, which would allow his sections to be shoveled in, and modifies previous elastic rules, it looks to me like a barrel of unsorted apples, and I do not wonder at commission men's returns for consignments of honey if these rules obtain to any great extent.

Your grading is good, except fancy, which should not admit the whole row of cells next the wood unsealed. No. 3 should not go on the market. It hurts the business, and gives the retailer too much show to "do" the consumer.

I did intend my letter as an order; but the way things are looking now, I am not sure but I shall need a barrel of sugar instead.

Mountain View, N. J., Aug. 11.

APICULTURAL STATION OF THE MARYLAND AGRICULTURAL COLLEGE.

An Old Bee-keeper in Charge.

BY C. H. LAKE.

[A few weeks ago we received a letter from Mr. C. H. Lake in regard to an apiary that he had the pleasure of establishing at the Maryland Agricultural College and Experiment Station near Washington, D. C. At that time he promised to send us photos if we cared to have them. I told him to send them on and tell us something about the station and its plans. The photos are reproduced in half-tone on the opposite page. The station is located eight miles from Washington, on the Baltimore and Ohio Railroad, at College Park Station.—ED.]

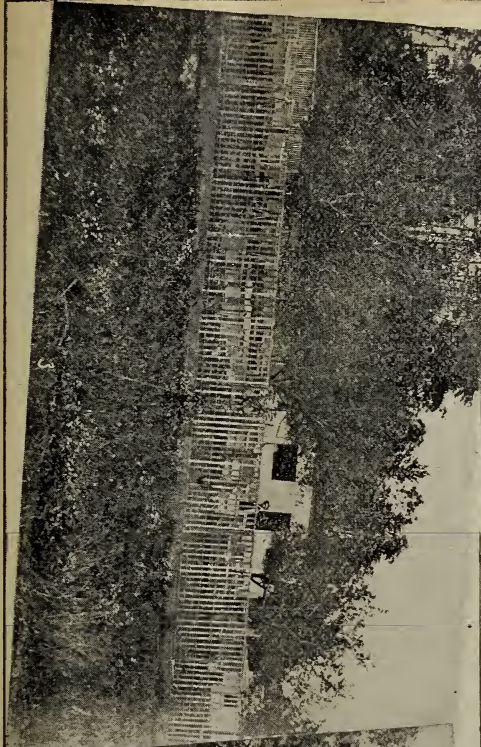
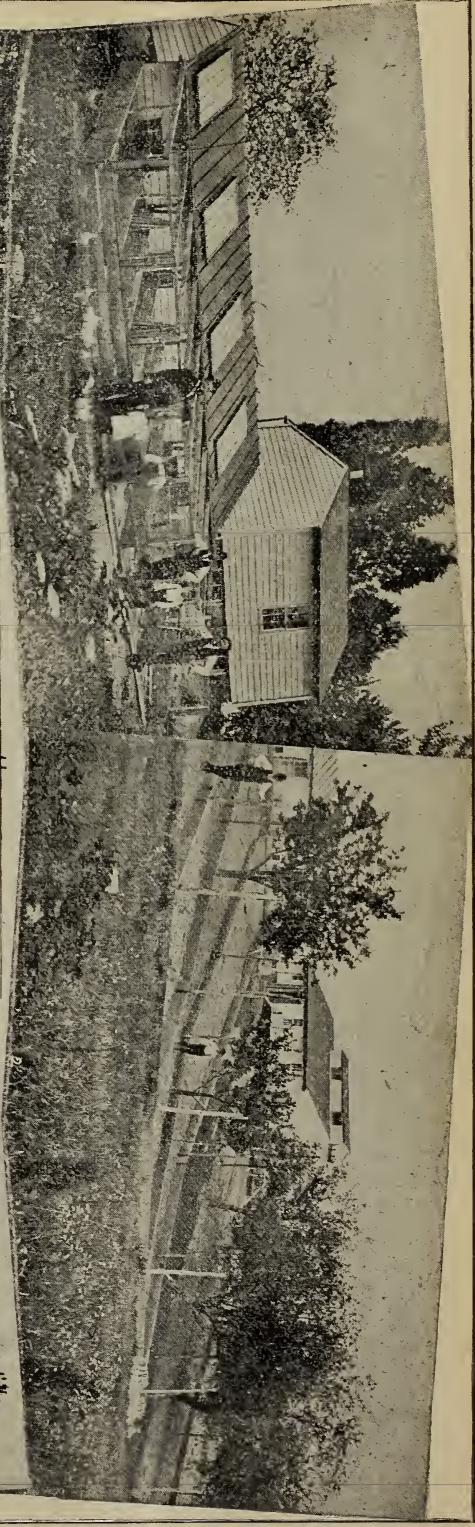
Friend Root:—I send you under separate cover the photographs of the aviary and apiary of the Maryland Agricultural College, and I will give you at this writing as brief a description as possible.

No. 1 is the brooder-house of the aviary; incubator capacity at present, 1300 eggs. The gentleman on the left is the president and his two children. Next is Mr. Taylor, the poultryman, and his little son. The other is intended for "yours truly." The trees showing over the brooder-house are on the rear grounds of the president's cottage.

No. 2 takes you a little farther up the hill. Place it at the left of No. 1 and you will see how the ground lies. It takes in a large part of the poultry plant.

No. 3 (again placed on the left) is the apiary, looking north. It is unfinished, as I wrote you; and, while it makes but a small show, it is more extensive than it looks. The white building is the honey-house and workshop. The window of workshop is nearly hidden by the tree. This view cuts off about 75 feet of the extreme left from view.

No. 4 is a view of this part taken from the shop-window looking south. So much for the views. Now take the plan. The long line of hives on the extreme left are all of the Baltimore pattern for extracting, and will contain 80 hives, to be covered in, for both shade and shelter. Along the front and poultry side, or at *a* and *b*, there will be located 100 or more



MARYLAND EXPERIMENT STATION: THE AVIARY AND THE APIARY.

comb-honey hives of the 8 and 10 frame Dove-tail patterns. This will leave the center grounds for nuclei, swarms, special hives, and test work.

What we propose to do, and how we shall go about it, I will not at this writing say; but the apiary is established, and your humble servant has been put at the head of both departments; and if I live I hope to see many a bee-crank (as well as poultry) who have been "over the ground" in the past.

Baltimore, Md.

RIETSCHKE AND FACTORY FOUNDATION COMPARED AGAIN.

Which is the Cheaper for the Poor Man to Buy?

BY F. L. THOMPSON.

Mr. Editor:—Inclosed find a sample of foundation made on a Rietsche press. It is part of a sample which came in a letter from Herr Rietsche himself. I had not intended to say much more on this subject; but on reflection I conclude it is too important to be allowed to drop in its present stage.

In his letter Herr Rietsche says that, given the ability (to work the machine, I suppose), his press turns out the exact thickness, and consequently strength, of foundation desired for use in the brood-nest. For example, the smallest size, which is 22 by 17 centimeters (8.66 x 6.69 in.), makes 36 sheets of a kilo of wax, corresponding to a square surface of 1.35 meters. The size for the normal German frame (22x35 centimeters, longer dimension vertical) makes 14 sheets to the kilo, or 1.1 square meters; a press 25 x 40 centimeters makes 9 or 10 sheets, or 9 to 1 meter; and so on, the larger the size the thicker the foundation, and conversely. Most bee-keepers, he says, are of the opinion that foundation should be no thinner than that proportion for the brood-chamber, and that, for the normal German frame, it is much better to make only 12 or 13 sheets to the kilo, instead of 14. Therefore, he concludes, home-made foundation is entirely fitted to the needs of the brood-nest, and makes the bee-keeper independent of the manufacturer, not to speak of the facts that he can use up his own pure wax, free from foul brood, and that he needs no artificial helps, such as wiring, etc., to get a beautiful comb built.

It appears from this, that, when one wants to wire his frames, he should specify the thinness of foundation he wants, as well as the size, in ordering; otherwise he will get a machine making foundation thick enough to dispense with wire. Perhaps this was the reason the circular that came with your machine claimed no more for it than a square meter of foundation to a kilo of wax.

For myself I prefer wiring, for several reasons, and am not suspicious of the purity or cleanness of the foundation furnished by our dealers. I favor the consideration of the Rietsche press only because it saves money and is easy to operate.

The sample inclosed is stated to have been made on a press which makes sheets measuring 25 x 20 centimeters; hence, if the above rule of proportionate thickness is exactly carried out I judge it is a trifle thicker than that made on the smallest press, which runs 1.35 meters to the kilo. Now, since the *vertical* height of a sheet made on the smallest press (evidently adapted to the standard "Halbrähmchen" or half-depth frame) is about 6 $\frac{7}{16}$ inches, while the L. sheet is 7 $\frac{3}{4}$ inches, the sample inclosed ought to represent about the thickness Herr Rietsche would consider suitable to the L. sheet, *without wiring*. In this country, however, we had better assume that full sheets would be wired. If so, we may also assume that the thickness of 1.35 meters to the kilo would be about right for the *wired* L. sheet. If I figure rightly this is about 7 $\frac{1}{4}$ sheets to the pound. Let us call it 7, and assume further that we can do as well as a ten-year-old boy at the Reichenberg convention, who, seeing the exhibition of foundation-making, asked permission to try the machine himself. His first sheet was a success, and he kept on the whole afternoon, employing "scarcely a minute" for each sheet. Then 7 lbs. an hour are worked, or \$1.12 an hour saved (if that weight of foundation, made on a mill, would cost 41 cents per lb. in quantity), or \$8.96 a day at the least, with the probability of at least doubling it—for Herr Rietsche is too well known in Germany to make it at all likely that he would make a statement of the speed of his machine that no one but himself could possibly attain.

I think something must have been decidedly wrong, either with the machine you tried or the way it was worked; for in all my reading of foreign journals I have not come across a single hint that foundation could not be made as thin as desired on a Rietsche press. This much seems certain, that it will not do for us Americans to be satisfied with our present knowledge of the Rietsche press. We must find out more about it before we drop the idea. If I could save \$1.12 to \$2.24 an hour, I should be quite willing that the bases of the cells should be considerably thicker than those in bought foundation; and, for that matter, is there any reason for supposing that they can not be made thin? Herr Alfonsus' statement, that foundation *can* be made as thin on the press as on the mill (on which I based my first assumptions) may be accurate when applied to the mill foundation that he has seen; and whatever thinness that may have had, is likely to be thin enough for the *bases* of the cells of *brood* foundation; while by altering the shape of the die surface (as was done in making rollers for the Given foundation), the amount of wax in the *walls* may give the required weight and strength to the foundation. However, this is all theory with me, and I ask, for information, what is the reason for assuming this can not be done in a molding-press? May not such an assumption be something like assuming that Given foundation could not be made on a roller mill?

Perhaps it is not altogether fanciful to suggest further that the introduction of an easy

and cheap method of making one's own brood foundation would result in a far more general use of foundation, with the attendant benefits, than is indicated even by the amount of money saved. That would be in accordance with human nature, at any rate. To pay out cash is much less likely to happen than to utilize what one has.

It strikes me that that "mussing-up of things generally" on page 446 is about as strong an expression as could be found to describe the molding process. True, I can't speak of it at first hand; but reading ought to give one a faint inkling of how matters are; and my reading so far has failed to show how there is any more mussing-up than in the inevitable task of melting up the wax product of the apiary; in fact, I should have inferred from my reading that it was, rather, a clean operation.

I note that you do not say that the majority of bee-keepers who have roller machines have long since come to the conclusion that it does not pay to make brood foundation for their own use. Perhaps they can't make it pay to make their own *surplus* foundation—a different matter. And even if they did make the statement of brood foundation, I should take the liberty to disagree with their assumption that their own circumstances are a rule for others. A man who can afford to lay out \$30 for a roller mill for his own use alone, with as little inducement as has hitherto been held out to do so, must for that very reason have some store of this world's goods. His interests are likely to be varied, and must be considerable; therefore his time must be worth, financially, a good deal more than mine. Most probably he *hires* help; and why should he not buy foundation? It amounts to the same thing as buying an expensive mill, and *hiring* a man to put his time in on the fuss and muss which it requires. But the poor man may have to lay out as much, or more, for foundation in any one year as a molding-press ought to cost him, while at the same time he gets no more for his time than a day laborer, counting the whole year. Why should he not get a cheap press, which, if we are to believe any thing at all that is said of it, requires very much less fussy and mussy work than the mill? It is fallacious to refer to the experience of the majority of bee-keepers in this matter, for they have had experience with the mill only. So far from being less able to compete with the roller machines with the factories, there are the best of reasons for thinking it is better able to compete. A table-knife successfully competes with a razor in a good many ways. Let us not imply that it is absolutely essential to impart a factory gloss to a home-made article for home consumption.

Dr. Miller doesn't want the bother and worry of making his own foundation. I shouldn't either, if I had as many irons in the fire as he has. It is a wonder he wants the bother and worry of doing any thing with wax, or of keeping bees at all. Mr. Editor, I respectfully request that you put out of the room all those bee-keepers who are presidents and secretaries and factotums of this, that, and

the other organization, rose-fanciers, etc., and all those who have sixteen assistants to boss—unless they promise to be good, and imagine themselves in the place of the representative bee-keeper who depends on his own pair of hands alone to secure him a year's support for a year's work, and who fondly hopes that his rainy-day pile, repeatedly scattered and tramped on, may some day begin to grow again.

Montrose, Col.

[You admit you have never tried the Rietsche press; and that being the case you have to get your facts and figures second-hand. Granting, for instance, that we are prejudiced in favor of factory-made foundation, it is reasonable to assume that the inventor or manufacturer of the Rietsche press is equally prejudiced in favor of his machine; but, so far as possible, let us eliminate prejudice, if there be any, and let cold figures speak for themselves.

In the first place, your figures—at least some of them—are incorrectly drawn. You are assuming that the sample of foundation you sent to us runs about $7\frac{1}{4}$ sheets to the L. frame. I carefully weighed it on delicate scales, and found it ran about 6 L. sheets to the pound. To prove the result, I went down into our wax-working department and picked out 6 sheets of medium brood foundation which ought to weigh 6 L. sheets to the pound. These, when placed on the scales, responded to the proper notch. Out of one of these sheets, all run at the same time, probably within a minute of each other, I cut a square of foundation equal in size to the little sample you sent. I then took a pair of delicate watchmaker's balances, and, having found that they "balanced," I placed a piece of Rietsche foundation on one side and a piece of our medium brood on the other side, both of exactly the same size. They balanced exactly.

Again, I notice that you figure wax at 25 cts. a pound. This figure does not include the cost of refining and a slight loss from dirt. After being cleaned it is worth 5 cents more. This would make the wax run 30 cents a pound in place of 25; for the 25-cent article will be hardly fit—at least the average run of it—to make decent foundation.

Then you have made another error in putting the price of factory-made foundation at 41 when it should be 40. Assuming that your boy or man on the Rietsche press would make 50 pounds of foundation in a day (which I very much doubt), you ought to take the 50-pound rate for factory-made foundation. Now, then, let us start over again:

I noticed you have allowed the boy or man 49 sheets per hour on the Rietsche press, on the basis of 7 sheets to the L. frame; but if you figure that the Rietsche sheets are only 6 to the pound, as per sample, then we will give you credit for 8 lbs. per hour, which at 30 cents would make a total of \$2.40. Suppose the poor man's time is worth 15 cts. an hour, this would make a total of \$2.55, not allowing any thing for express charges on machine from Germany, cost of the machine itself, the mussing-up of pots, kettles, and

pans, and the probable scorching and spoiling of some wax—a result that is quite liable to take place with the ordinary amateur. Medium brood factory-made foundation in lots of 50 pounds would cost \$3.20, leaving a balance in your favor of 65 cents—that is, providing we do not figure in the cost of the Rietsche press, express on the same, musing up, soiling of pots and kettles, and the possibility of ruining some wax.

If you have saved 65 cents, you have a proportionately inferior article of foundation. It is clumsy and brittle, as is all cast wax. Careful examination of the sample foundation you sent shows that there is a fearful waste of wax in the bases, and not enough side-wall to make the bees take it quickly. That being the case, it is very evident that light brood foundation, factory-made, would not only be just as good but just as cheap—yes, far cheaper—if we include the incidental items referred to. Forty-nine sheets of the latter will cost about \$2.57, and the foundation that you made would cost \$2.55.

I carefully tested, by heat, factory-made light brood and the Rietsche sample sent, and found that the former was not only tougher, but could resist heat fully as well.

To argue that a bee-keeper can afford to make his own foundation would be like trying to prove that a small flour-mill could compete with one of the great establishments of the country, or that the old-fashioned cobbler could make a pair of shoes as cheaply as the great shoe-factories. You may be able to so place the figures as to make a strong case; but you can not get around the fact that even the small manufacturers of foundation have generally given up the trade to the large manufacturers, for the reason that they can buy cheaper than they can make it. What is true of the small manufacturers would be more true of the consumer.

I am not trying to show that bee-keepers ought to buy Root's, Dadant's, or the foundation of anybody else, rather than to make it, for the sake of bolstering up the supply business; but I do think it would be about as foolish for one to make his own foundation as for him to try to make his own clothes. There has been a great deal of money wasted by a good many people trying to make their own things "to save manufacturers' profits," instead of sending to the factory and getting something much better, and usually for less money. Some bee-keepers even now are foolish enough to try to make their own hives and brood-frames. If they will be careful enough to figure, they would see that they are probably paying as much for their lumber to make a certain number of hives as they would have to pay for the same lumber at the hive-factory, all neatly and accurately cut up, and ready to nail together.

I wish I could say these things in some other journal than our own; for as it is, at least some will shake their heads and say, "He has got an ax to grind." Perhaps some of our readers will think I am taking a good deal of space for either side of this question; but GLEANINGS believes in free speech, and

in letting both sides have a hearing up to a reasonable limit.

MIGRATORY BEE-KEEPING IN CALIFORNIA.

Some of the Difficulties; Large and Small Wagons for the Purpose.

BY C. A. HATCH.

To one living in the East it seems marvelous and all sunshine and pleasantness when he reads of the great yields of honey in this country. But California bee-keeping has its drawbacks as well as any other country. The first thing noticeable to a new comer is the fact that scarcely any bee-keeper lives where he keeps his bees. This of itself makes the bee-man at least migratory, even if his bees are not. The reason for this is that few of the good honey-yielding plants grow on land suitable for farming, and usually of no great value except for stock-ranges; and, further, while California produces many honey-plants, there are but few locations where more than one are available; therefore the successful bee-man must be prepared to emigrate to pastures new when one place has been worked; and when a dry season comes he must be ready to take advantage of any chance honey-flow he may hear of.

My experience has been confined to the Santa Clara Valley. Here we find most of the bee-keepers live in the towns, and move from place to place, sometimes going as far as 100 miles from home. Many are single men with no families, and camp anywhere during the bee-season. Some go to the mountains during the sage-bloom, and then either move to the coast to the bean-fields, where lima beans are grown by the thousand acres, or go still further away from the coast to get California buckwheat or buckbush honey, which is a white fine honey, and nothing like our eastern buckwheat.

The kind of wagon usually used is a common farm wagon or a large freight-wagon needing four to six horses to draw it. M. H. Mendleson, who moves more than any other bee-man I know of, has built special racks for the purpose, suited to large wagons and large teams; but either small wagons or large ones are open to objections. It takes too long to move with two-horse teams, and the large wagons are too unwieldy with their long string of horses to go every place that it may be required to go to. Most of the apiaries are in the parts of the country where roads are not of the best, and there are always many risks by rocks, floods, quicksands, etc.

The bees are prepared for moving, first, by extracting all from the supers if run for extracting; or, if for comb, all supers are removed, and each hive must have not less than four empty frames in the brood-nest, and, if moved at the close of sage-bloom, an empty extracting-super having alternate empty combs and empty frames is put on. Second, the entrance is closed with a screen, and a frame covering the whole top of the hive, covered with wire screen, is put on. This screen cover

has the two end pieces made $\frac{1}{2}$ inch wider, so that, when the hive-cover is nailed on, it leaves $\frac{1}{2}$ inch space between the screen and hive-cover, so in case one hive is set on top of another, ventilation will not be cut off.

The hives are usually loaded at night, and the teams lie up during the day if the journey is to be too long for one night.

This is M. H. Mendleson's plan, and I think he has made the subject a study, and has the best moving-appliances I have seen, and makes a success of it where the distance is not too great for one night's journey. But I am inclined to think that, where the trip is too far for that, the present arrangements are inadequate. Too many colonies crowd the entrance full of bees, and thus cut off upward draft, which smothers too many bees — not that Mr. M.'s loss of colonies has been great (only about 10 out of 400 moved), but the weakening of colonies has been too great to leave them strong enough for good work until more bees are hatched, and then it is too late for the honey-flow. There seems to be greater loss than would appear by simply looking at the dead bees at the entrance, so I came to the conclusion that many that apparently came through all right were so weakened by worry that they soon succumbed when put to work.

There seems to be another difficulty in the way of migratory bee-keeping being a brilliant success; and that is the fact that colonies at the close of a long and abundant honey-flow are not as strong in numbers as at the beginning. Of course, this can in a measure be overcome by giving particular attention to breeding bees during the honey-flow. Good ventilation and a circulation through the hive are essentials. In two instances have I known of disaster for lack of these two essentials. One man lost a third, and the other much more. This was loss outright, to say nothing of injury to others.

I rented bees this season, first, because I was a "tenderfoot," and did not know how much my Wisconsin bee-keeping would avail me here; and, second, because I wanted to be free to go when the honey season was done. I ran one apiary for Mr. Mendleson, consisting of 233, spring count, and 275 at the close of the season. From these we extracted 48,500 lbs., and then removed to the bean-fields, where the prospect is fair for getting 4000 lbs. more.

Bean honey is fine-flavored and white, but inclined to candy quickly.

Montalvo, Cal., Aug. 10.

AMONG THE BEE-KEEPERS OF MICHIGAN.

The Advantage in the Use of Bottom-starters; Developing the Home Market; Hives for Migratory Bee-keeping.

BY A. L. BOYDEN.

Reaching my old home at Saline for a few days' vacation I found that the season there (Southern Michigan) had been better than for a number of years past. White clover, which had almost disappeared, has returned,

and a fair crop of honey had been secured. Looking over the cases of comb honey I had to compliment my brother on the appearance of it, as the combs were built down so well, and so securely fastened to the bottom. He had used bottom starters, and declared himself very much in favor of them. I believe that much of the breakage in shipping might be avoided if combs were well built to the bottom of the section; and perhaps the best if not the only way to secure this is by using bottom starters.

A day or two later we had a very pleasant call from Mr. W. D. Simonds, of Whittaker, Mich. Mr. Simonds formerly used chaff hives, I believe; but, being annoyed with foul brood, and for other reasons, he has given up their use, and now uses a house-apiary. He is very enthusiastic over it, believing that, for ease in handling, freedom from robbers, and safety in wintering, it is all that can be desired. I believe he mentioned only one difficulty; viz., an occasional loss of queens in mating.

Saturday, Aug. 7, found me at the home and apiary of a Lenawee County bee-keeper, Mr. A. Middlebrook. He reports a fair season, showing me a nice lot of choice extracted and comb honey. I asked him where he sold his honey, and he replied, "In the home market." I then asked him what price his extracted netted him. He said, "About ten cents per pound." It seems to me that bee-keepers make a great mistake in not doing more to work up their home markets. Mr. Middlebrook has used frames about 10 x 14; but having tried the self-spacing Hoffman, he proposes to adopt this style in regular L. size.

IN THE WILLOW-HERB DISTRICT.

Leaving Washtenaw Co. for a few days' visit to Central Michigan I stopped first at Mount Pleasant. This is a pleasant little town in fact as well as in name. I had heard that the willow-herb never fails to yield honey, so I expected to find the bee-keepers of that section in the midst of the flow. Very unexpectedly, however, and almost unaccountably, it is yielding but little this year, and in some cases the bees were robbing. I called to see Mr. T. J. Fordyce, a supply-dealer who has quite a large apiary within the limits of Mount Pleasant. He was away from home, so I chatted with Mrs. Fordyce for an hour or more, learning much of interest to me about the willow-herb country. A puncture in my bicycle-tire delayed my departure for the out-of-town apiaries, so I passed the time very pleasantly with Mr. Wm. Bamber, proprietor of a planing-mill. He also keeps a few bees, and is making some supplies. Evidently the Dove-tailed hive is as popular there as elsewhere, as I noticed with interest a machine he had made for dovetailing them.

After dinner I started on my wheel for the apiaries of H. S. Wheeler, Walter Wing, and H. S. Morrison, which are located down the Chippewa River in the tracts burned over by forest-fires three years ago. I found neither Mr. Wheeler nor Mr. Wing at home, so I pushed on over sandy roads to Mr. Morrison's

yard. I might mention that none of these apiaries are located at the owners' homes. Mr. Morrison has about 200 colonies, and he uses largely the Simplicity hive. I spent the night with him, and very much enjoyed hearing him relate some of the incidents connected with his work in the willow-herb section. I had always supposed that, in moving an apiary to catch a honey-flow, a good deal of time would be lost by the bees, even after reaching the new field; but when Mr. Morrison told me he found bees coming back loaded with honey in *seventeen minutes* after the entrance was opened on the new field, I thought very differently. Indeed, I believe now more than ever that it will pay bee-keepers to use such hives as can be readily moved from one place to another without loss of time, and with no annoyance to the bees or apiarist.

[Mr. Boyden, the writer of the foregoing, is Mr. Calvert's right-hand man and stenographer. It was Mr. Boyden who, during Mr. Calvert's absence for nearly a month, assumed much of the work that devolves on my brother (-in-law) John. Before coming here he was engaged in the supply business in Michigan, and had quite an extended experience as a bee-keeper. He is now one of the old standbys of the office. In our next issue Mr. Boyden will relate something further in regard to his trip.—ED.]

NOTES BY THE WAY.

BY J. T. CALVERT.

After leaving Reno we ascended the Sierras to the summit, 7017 feet above the sea, and above the snow-line, even in July. The descent into the beautiful State of California was a panorama of ever-increasing beauty. At Auburn we were greeted by the Christian Endeavorers, and treated to a bouquet of flowers for every one. Fruit was abundant and luscious, and cheap. When passing through Clipper Gap I learned that S. F. Woodworth, who has been making bee-supplies and fruit-boxes at that place, had recently been burned out—a total loss and no insurance. If your property is not insured, see that you have it done before you are a day older.

The C. E. convention was one of unusual interest and power. It has received such full notice throughout the religious and secular press that I will not attempt a report here. I set out to make notes of special interest to bee-keepers, and hope I may not entirely fail to do so.

I called on W. A. Pryal, of Oakland, who is still interested in bees. He had had the pleasure, a few weeks previously, of showing about the city Mr. Thos. Wm. Cowan, editor of the *British Bee Journal*. Mr. Cowan has a son in California, with whom he and Mrs. Cowan have been spending the past winter. They are so well pleased with California that they expect to remain another year and enjoy its delightful climate and beautiful scenery and abundant natural resources.

The great wheat-harvesters of California were a sight worth mentioning. These machines, drawn by 24 to 30 horses or mules, and cutting a swath 18 to 24 feet wide, cut the grain off just low enough to secure all the heads. The grain is thrashed, and put into sacks. The chaff and straw are either dropped in a swath, or, if it is desired to stack and use it, it is collected and dropped off in bundles, forming a winrow ready to be gathered and stacked. The grain, cleaned ready for market, is dumped off two or three sacks at a time, gathered up on wagons, and corded up in the fields. There are no barns or granaries, every thing being left in the open air. As no rain falls except during a few winter months, there is no need of the protection required in other sections of the country. Single fields cover hundreds and sometimes thousands of acres. I was told that they usually get two crops of wheat each year. The second crop is self-seeded from the first, and is usually much lighter. As I passed down the San Joaquin Valley much of the crop was already harvested. The immense wheat-storehouses at the stations along the way were nearly full. Thousands of sacks were corded up in the fields. Other fields were not yet harvested, and, as far as the eye could see on either side the track, there was little to be seen but wheat-fields. As I looked on this immense stock of golden grain, and noted that the market price was advancing, I concluded that here were gold-fields of more value than those of Alaska, and that they would feed more people, and bring more blessing to mankind.

I stopped a few hours with M. R. Madary, of Fresno, who handles most of the bee-supply trade of the San Joaquin valley. He reported that, up to about the 10th of July, the bees had barely made a living, and bee-keepers had begun to feel rather blue. But at the time I was there, July 14, they were rolling in the honey at a very lively rate, and prospects were favorable for a fairly good crop. The main dependence here is alfalfa, and a very good quality of honey is produced. A cool backward season seemed to be the cause of a lack of honey earlier.

My next stop was at Los Angeles, where I spent several days. On the way there, near Acton and Newhall we passed apiaries near the railroad. From the looks of the mountains and country generally, at this season, as we passed along down the canyon, we wondered where the bees got so much beautiful honey as has been gathered in this section this year. The latter rains did not come, hence the honey-harvest was cut off earlier than it is when they have an ideal season. The sagebrush and other shrubs that produce honey were pretty well dried up at this time of year.

I found John H. Martin (the Rambler) at the office of the California Bee-keepers' Exchange, 330 South Broadway. He had had previous notice of my coming, and had notified a few of the bee-keepers near the city. In a little while Mr. Bennett, of the *Pacific Bee Journal*, dropped in; also Geo. W. Brodbeck. Soon half a dozen of us were together having a little bee convention all to ourselves. The

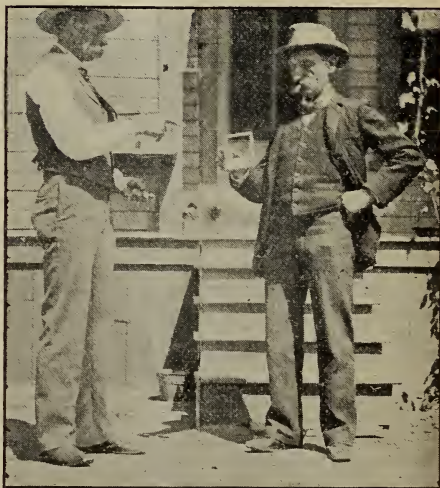
bee-keepers of Southern California were feeling quite comfortable from the fact that they had secured what they considered about half a crop. This half-crop was estimated to be from 250 to 300 carloads (12 tons to a car). Some commission men had reported to me that the crop would be 500 carloads; but Mr. Martin, who is secretary of the Bee-keepers' Exchange, and in a position to know, said that half that amount would be a fair estimate. San Diego Co. alone produced about 60 carloads, or one-fifth to one-fourth of the whole. Quite a number of cars of honey had already been sent east, and some to Europe, by the commission men. The Bee-keepers' Exchange had employed the Cutting Fruit Co. as their selling agents, and also fixed upon the minimum price for the different grades; and up to the time I was there (July 20) had made almost no sales. They had already warehoused quite a little, advancing to the bee-keepers about half its value until it should be sold. Some bee-keepers, who were anxious to get their money, were selling outright to dealers and commission men at lower prices than those fixed by the Exchange. It will take some time to clean up such lots of honey, when the Exchange may hope to realize on their honey. It will take patience and perseverance on the part of the members of the Exchange till they become established. Some changes in methods of management may be found necessary; but there is no question that they are on the right track, and that, if California bee-keepers generally stand by the Exchange, they will be benefited in no small degree. Exchange honey is sold under a trade-mark seal, and guaranteed.

Perhaps nine-tenths of the honey produced in Southern California is extracted. The proportion of comb honey, however, is increasing, and it would be hard to surpass anywhere some of the comb honey I saw.

One of the leading bee-keepers is M. H. Mendleson, of Piru City. He has 900 colonies of bees, and up to the middle of July had taken over fifty tons. He had just moved his bees to the bean-fields, where he hoped to secure 12 to 15 tons more. If it were not for the faithlessness of a tramp bee-keeper whom he had engaged for the season he would have had at least ten tons more. This man, a Mr. Frank Curl, has lots of ability and a great deal of experience, and can make himself very useful. He has wandered about so much, having been in almost every State in the Union, and to Cuba twice, that he can not control his wandering mania. He has been here in Medina three times in the last twelve years. He engaged to Mr. Mendleson for the season, and left him just when the honey was coming in fastest and he could least afford to spare him. He even offered him double the wages he had agreed to work for; but nothing would induce him to stay. I mention this here that others may be warned.

Mr. Mendleson put into use this season 30 of the Danzenbaker hives complete, and 500 of the Danz. supers, which he used over the regular 10-frame L. hive. He had 30,000 of the Danz. sections filled, and most likely

would have had forty to fifty thousand had not Mr. Curl failed him at the critical time. While he does not like the brood-chamber of the Danz. hive, he is much pleased with the super, and expects to get as many more for next season. The honey he produced in the Danz. sections, put up in our basswood cases, nicely labeled, was handsome indeed. He was getting $11\frac{1}{2}$ c per pound from the fancy grocery trade, while large lots in the regular $4\frac{1}{4}$ sections and pine cases made on the coast were bringing 8 to 9 cents.



RAMBLER AND MENDLESON DISCUSSING THE DANZENBAKER SECTION.

While in Los Angeles I enjoyed the hospitality of Rambler's "bachelor hall," and partook of the pancakes for which he is deservedly famous. We had Mr. Mendleson with us a part of the time, and I am pleased to be able to give you a view of "the other two," with a rear view of the "hall" in the background.

Some C. E. ladies from the East called on Mr. Martin after I left, and he writes me that he could not prevail on one of them to remain in Southern California.

Although I visited the State at the worst time to see it at its best, I was delighted with it, and hope to go again before many years roll by, and stay longer.

THE editor of the *Review*, in speaking of the passage at arms between Mr. Newman on the one side, and Messrs. Mason, York, *et al.*, on the other, says he can not close without "expressing regret at the spirit exhibited by Mr. Newman toward some of his old friends who have thought his course open to criticism." That is the way a great many more of Mr. Newman's old friends feel about it. Not one has had a desire to accuse him of being "dishonest," neither have they felt "malignant" or "spiteful" toward him.



LONG HIVES VS. TIERING UP.

Question.—Why do not those working for extracted honey use a long hive, holding the same number of frames that they wish to use in one story, instead of tiering up several hives, one on top of the other, as is advised in our bee-papers, and quite generally practiced? I am of the opinion that a long hive would be more convenient, and that less time would be consumed in the manipulation of it.

Answer.—The above brings to my mind what happened years ago; and as it will serve to answer the correspondent's question I will speak of it here.

Some twenty or twenty-five years ago Mr. D. L. Adair, of Kentucky, was quite a prominent bee-keeper and writer for our bee-papers. He used and advocated a long hive, to be used on the principle of spreading frames out horizontally, instead of tiering one hive above the other, claiming that, thereby, a colony of bees could be kept in a normal condition, and while in said condition no swarming would be the result. This he termed the "Long-idea" hive. Being always ready to test all "new ideas," I made two hives, each four feet long, during the next winter. One of these I worked for extracted, and the other for comb honey, on the Adair plan. The one worked for comb honey swarmed, either because the "idea" was faulty, or because I did not know how to fully manage such a hive, or both; so after repeated trials to keep them at work in the four-foot hive I let them have their own way, when they had swarmed after being returned the fourth time.

The one worked for extracted honey did splendidly; but another, worked on the tiering-up plan, did nearly or quite as well; and by practical knowledge I learned that I could work a two or three story hive much more easily than I could this long one. To take the frames out, the person's back must be bent just enough to make it the hardest kind of work; and the bees which were shaken off the combs would crawl all over the sides and top of the hive in such numbers as to make it almost impossible to close it again without taking much valuable time. With the two-story hive the bees could be shaken on top of the frames in the lower hive, with but very few taking wing, when they would crawl below till the hive was closed; and the operator could stand erect, or nearly so, while doing the work.

But the worst thing about it was that I lost both colonies during the next winter, and during every succeeding winter that I tried to winter bees in them. So far as I could see they were prepared for winter as well as any of the other hives which came through the winter in good condition. I tried these hives for honey several years, putting colonies from

other hives in them in the spring, as often as those in them died, but with no better success than at first; and finally, becoming disgusted with them, I tore them to pieces and made the lumber into other hives. For extracted honey, I know of nothing better than using any of the ordinary hives two and three stories high, according to the populousness of the colony being worked.

ITALIAN BEES NOT WORKING IN SECTIONS.

Question.—I have had Italian bees for the past two seasons, and they have made no surplus honey, while from my blacks I have had fair returns in section honey. What do you suppose is the cause of this? and what course shall I pursue to remedy the matter?

Answer.—As the writer does not give information as to the number of colonies he keeps, it is hardly possible to tell just what course should be pursued in the matter. If he has ten or more colonies that persist in not entering the sections, it is something I never knew of happening before; but if there is only one or two colonies which act that way it would not be very strange. One important point in the construction of a hive for comb honey where Italian bees are used should not be overlooked; and that is, the brood-chamber should not be too large. If the questioner has a brood-chamber of from 2500 to 3000 cubic inches, I should not wonder at the actions of the Italian bees; for Italians are more prone to store honey in the brood-chamber than the blacks. Especially do they show a preference toward storing in the brood-combs over the sections if the queen does not have the combs occupied with brood when the honey season commences; and if they have room to store from 30 to 40 pounds of honey in the combs below they will very likely not go into the sections at all. If bees refuse to work in sections, there are various methods of coaxing them to go to work. I will give two or three which are usually successful.

If a section, or several of them, are taken from a hive where the bees are at work nicely in them, and placed on the hive where the bees are loath to enter the sections, carrying the bees that adhere to the sections with them, it will usually incite the non-working colony to go to work in the sections also. If this does not work, fit a piece of drone comb, containing small larvæ, into one or two sections, when the bees will at once commence to work in the surrounding sections. Or you can drum or shake from the frames the larger part of the bees and the queen from such colony as will not work in sections, and put them into an empty box or hive; and when they get to building comb nicely, put them back where they came from. Where this plan has been used I never knew them to fail to work, going right to the sections, and building comb in short order. In drumming out the bees, do not drive too close, as bees enough must be left to fully protect the brood. The nice white comb that the drummed colony build while in the box should be placed in the sections for "baits," for there is no greater incentive to commence work than new white

comb containing a little new honey. Of course, all of this is given on the supposition that our questioner's bees were strong enough as to numbers to work in sections, and still refused to do so, when the honey harvest was on. Where any hive is not filled with bees it is useless to attempt to make them work in sections. Many are deceived in this way, and I mistrust that this has something to do with our friend's bees not working. Italian bees do not breed quite as rapidly early in the season as do black bees; but if attended to as they should be they will have more brood in just the right time to give us laborers in our field just when we wish them than will the others. That Italian bees are inferior to black bees for comb honey, if properly managed, I never could see, even in a good season; which fact is now generally conceded by nearly all of our best bee-keepers; while in a poor season they certainly show great superiority over the latter to the amount of quite a surplus, while the black bees scarcely make a living.

in my chicken-yard, under a large apple-tree which furnishes shade for both chickens and bees all day except in the early part of the morning. The yard is 30 by 40 feet, inclosed with wire netting 7 feet high, in which I keep eight Black Minorca hens. These keep the grass and weeds down so that you could hardly find a blade of grass in the whole yard. The chickens and bees run a separate business, and never interfere with each other except when I shave off the heads of drones, and the bees carry them out. Then the chickens will clean them up.

I had ten stands of bees; increased to 21, and got nearly 900 lbs. of comb honey, which I think is pretty good, considering I live in a city, and do not follow it for a business. One advantage, I think, in having a high fence around your apiary is that it compels the bees to fly high enough to get over, and keeps them out of the way of any one who may be in another part of the yard.

L. I. SHRADER.

New Albany, Ind., Aug. 5.



A QUEEN-REGISTER DESIGN.

Inclosed find a queen-register card that I use for keeping record of hives, in which I am raising queens. I have 30 hives of blacks in my apiary, and wanted to raise Italians for

HILTON IN FAVOR OF THE SQUARE BOTTOM-BARS.

I have just read O. O. Poppleton's article on page 517, and it has given me courage to say I was much pleased with the $\frac{3}{8}$ bottom-bars and so sorry when you stopped making them; and many of my customers have asked for those "square bottom-bars." I have been tempted several times to ask you if you could not make mine that way, but would think I ought to conform to the will of the majority. But I feel with you that the majority does not know what is wanted. I never had so many frames fastened to the bottom-bars as while using the $\frac{3}{8}$ bottom-bar. I hope you will make more of them, and always send me that kind.

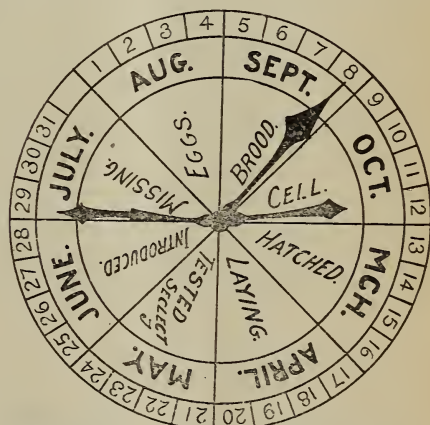
GEORGE E. HILTON.

Fremont, Mich., July 19.

[I have noticed that all the square bars in our apiary have the combs built clear down to them, and most of them are solid slabs without a place for the queen to hide. The only objection to them is that the bees will not only build down to them, but sometimes clear past them, on to the next set of frames below. This was urged at the time we made the change, and was considered so serious that the substitution for a wider bar seemed almost imperative.—Ed.]

ANOTHER WAY TO KEEP GRASS DOWN IN THE APIARY.

After reading what you had to say in the last number of GLEANINGS about sheep keeping down the grass in the apiary, I thought perhaps my way of doing it would be interesting to you and your readers. I keep my bees



each hive. I tack this card to a 4x4x $\frac{1}{4}$ piece of pine, then drive one tack through the hands or registers. I then drive in four tacks with the heads $\frac{1}{4}$ inch out; then I turn the board card down. All I have to do to know the condition of a hive is to turn over and look. This was my first attempt at queen-rearing, and I must say I enjoy it. I am trying to follow instructions as given in the A B C of Bee Culture.

R. S. WILSON.

The Gums, Miss.

HONEY-FLOW PHENOMENAL.

The honey-flow is over in this locality, and all I can say is it was phenomenal. I have never seen the clover bloom as early and last as long as it did this year. We had a fair fruit-bloom, a very light locust, and a very light basswood, as a great many of the few

trees of that variety we have in this section failed to bloom. I had only 9 hives, spring count; now I have 32; have taken off 300 lbs., and have 700 or 800 more to take off. I have sold 250 lbs. at 20 cts. per lb. The clover honey is as fine as silk and as white as foam. The fruit-bloom is rather dark, but of extra flavor.

J. L. BELL.

West Middletown, Pa., July 27.

MARKETS SMASHED; TOO MUCH HONEY; FOUL BROOD AND POOR SEASONS BLESSINGS IN DISGUISE.

Our white-honey harvest is not over; bees are working hard on both white and sweet clover. I never saw in Wisconsin such solid fields of white clover as we have had, and it keeps renewing right along. Weather is now splendid for secretion.

Our local market is smashed. I sold a few crates to merchants in Monroe at 12½; then in came the farmers and filled them up at 10 cts. Now the farmers are going to everybody and selling at 10 cts. Merchants expect to buy at 8 cts. (fancy comb honey). I have sent some trial shipments to Chicago and Milwaukee, but have not received returns yet. N. E. France writes me that those markets are already filled up with California honey, both comb and extracted. It looks to me as though the business has fallen by its own weight, and foul brood and bad seasons have been friends instead of enemies. I had expected to go more largely into honey production, and am running now about 160 colonies; but your kind advice (which I was wise enough to heed), not to give up railroad work, was the best thing for me that you could have advised. I have had three months' leave of absence this summer, and have worked hard in the apiaries here and at Monroe, and had a good man helping me. The Monroe field is a splendid one, and a nice place to live. Brown-town promises to give a heavy crop from the large branching sunflower again this year.

HARRY LATHROP.

Browntown, Wis., July 29.



R. H. L., O.—Sometimes a swarm will come out and enter into another hive, the result being a battle between two lots of bees. Instead of allowing them to fight, however, you should have smoked them both thoroughly.

I. M., Mich.—I feel quite certain that the bees in question have been visiting milkweed, for I notice the milkweed-pollen appendages to their legs. I think you will find the milkweed is in bloom in your vicinity, and that the bees are working on it. The reason why you think they are robbers is because, when they go into the hive, the other bees attempt

to claw off the appendages, and they are apparently attacking them as if they were robbers. For fuller particulars we would refer you to "Milkweed," in the A B C of Bee Culture.

R. C., Neb.—There must be some mistake about the rumor that you heard regarding a bee-keeper in Illinois feeding his bees glucose by simply knocking in the head of the barrel containing the stuff, and letting the bees help themselves. Bees will not touch clear glucose unless it is diluted; and even then they will not touch the stuff that is ordinarily used for adulterating. It is too vile, and has too small an amount of sweet to attract their attention. It is possible, however, that the party you refer to buys grape sugar, often called glucose. This is not a bad sweet. Years ago, when sugar was much higher than now, we used to feed our bees this kind of sugar to stimulate brood-rearing. It is such a mild sweet that the bees would never rob. It does not pay to use it now.

J. H. McC., Ark.—We can not explain why your bees should swarm more this year than usual, unless it is because the honey-flow has been unprecedentedly heavy. It does not do to return a swarm back to the hive from which it came, without changing its internal condition. They will sulk, hang out, loaf, and finally swarm again; in fact, they will swarm as often as you hive them, and as long as the honey season continues. The best way is to live them on the *old stand* on starters or frames of foundation in another hive. The old parent colony, while the swarm is in the air, should be removed to another location. If there was already a super on the parent colony, it should be put on the new hive now on the old stand. For particulars, see page 32 of our catalog; also our A B C of Bee Culture.

W. W. P., Ill.—It is not difficult to understand why you lost your queen. You probably failed to note carefully the first three sentences of the directions for introducing. We have sent you another set of directions, and now call your attention to the fact that a colony that has been queenless from 12 to 15 days is not likely to accept a queen; for in that time they are pretty sure to have a substitute of their own, in which case it would be simply impossible to introduce a queen. We never think of trying to introduce where we find a number of queen-cells. You may be sure you have destroyed them all; but even if you do succeed, the bees somehow have the *impression* that they have cells, and that, consequently, they are going to have young queens, and they do not want an introduced mother. You will note that the directions state that colonies should not be queenless over five days, and two days are usually better. The reason for this is that in this short length of time the bees have not had time enough to rear cells, or, at least, sufficiently far along to "bank" on future prospects. The directions that we have prepared for introducing queens have been adopted by all queen-breeders; and from this it is reasonably certain that the statements contained there are very nearly correct.



MR. HUTCHINSON says, "Starting a journal simply to enable one to berate some one, is too much like biting off one's nose to spite his face." Just so. The experiment has been tried two or three times, and the result has been just as Mr. H. says. •

PROPOLIS is now getting to be a little stiff and hard, and it is sometimes a difficult matter to separate the super from the hive-body. Nothing is better for this purpose than a large screwdriver. Better yet, don't leave supers on too long unless you are after an extra quality of well-ripened honey.

DID you ever notice that the strong, smartly flavored of some honeys are rendered much more mild if eaten with bread and butter? After all, almost any honey tastes better when taken in connection with the staff of life. I remember that once the judges of a honey exhibit at the Ohio State Fair insisted on having bread and butter to test the honey by.

MR. HUTCHINSON, in commenting on the fact that Mr. Vernon Burt keeps grass down in his apiary by letting sheep run among the hives, says the only objection he can see to it is that the "ground might not be so tidy as we should like it;" and while he admits that it is considerable work to keep grass down with a lawn-mower, he is of the opinion that the accompanying advantages arising from the use of the mower are worth all they cost. I can readily see how Mr. Hutchinson would think the ground might be untidy in places where sheep were kept; but if he could see Mr. Burt's apiary I think he would conclude with me that the ground about the hives is as neat and clean as a mower could make it.

At our house we like well-ripened honey—honey that has been on the hive for some two months after it has been stored and sealed. We have some supers at our out-yard, containing sections of sealed honey that had been on the hive for some six weeks after being capped over. The cappings are badly travel-stained, and sections pretty well smeared with propolis; but the eating of the honey is where the best part comes in. Such travel-stained sections would not sell; but for my own use I prefer them every time. I do not know that I have any particular liking for propolis and travel-stain, but I do like honey that has been ripened by the bees.

A SUBSCRIBER sends us a section honey-box which he says is over thirty years old. It is exactly $4\frac{1}{4}$ inches square, and the thickness of the stuff itself is $\frac{3}{8}$. Our subscriber does not give his name, but says, "Contrast this with the Root sections of to-day." The re-

markable thing is that it should be $4\frac{1}{4}$ square, exactly the size of the standard section of to-day. It was A. I. Root, I believe, who fixed the standard size of the sectional honey-box, and that was away back in 1872, I think. That would be only 25 years ago. A. I. R. adopted the $4\frac{1}{4}$ size because 8 of them would just go inside of an L. frame. It is possible that the user or maker of this section adopted the same dimensions for the same reason.

IN a recent editorial, in speaking of the fact of our now using new type and a new press to get out this journal, I wound up by saying that, while we did not claim to have the best bee-journal, we did think we were "keeping up with the procession." To this claim the editors of both the *American Bee Journal* and the *Bee-keepers' Review* have kindly given their cordial assent. The fact is, I could not honestly say more, knowing the general excellence of our two rival cotemporaries.

By the way, how much better it is to be modest and moderate in statement regarding one's own wares, one's own journal, or one's own baby, if you please! Often we see the advertisement of a country grocer who says, "We pay the highest price for butter and eggs, and sell groceries the cheapest;" or, "We make the best goods;" or, "We lead the procession." I do not know but we shall have to confess that we have been just a *little* guilty of what I am now condemning. If the Lord will forgive us we will never do so again.

Suppose, for instance, I had said, "GLEANINGS is the best bee-journal, and always leads in the procession." Could Bros. Hutchinson and York have indorsed that without making a wry face? Well, I think not, very much. They might have made the corners of my mouth drop down a notch or two.

I suppose it is not stretching the truth very much to state that each bee-journal has a field of its own—a mission of its own—and each excels in its own particular line.

THE LANGSTROTH-MONUMENT FUND.

SUBSCRIPTIONS for the Langstroth monument are coming in very slowly indeed, and in amounts very small. An eminent bee-keeper from a foreign land, who had already sent us a generous contribution, and who now sends \$10 in addition, says: "I think it a blot on bee-keepers, not coming forward more liberally. . . . Are the bee-keepers of America really so poor that they are not able to raise a monument to Langstroth?" I do not believe it is because they are poor so much as it is because they are careless—that is, they *intend* to do something, but put it off till some other time, and that "some other time" never comes. If the *American Bee Journal*, the *Review*, and GLEANINGS keep on hammering, we may in time be able to raise funds to put up a suitable monument. If hammering will bring the money, GLEANINGS will keep on pounding, but for goodness' sake, let us not be a reproach to bee-men across the water. In the mean time, do not put it off, but send in the nickels, the dimes the quarters, and

the dollars. Langstroth was a real benefactor. He is not only revered by the bee-keepers of the United States, but by all Europe as well. Let us pay him this our last tribute. If the money comes in, and a suitable monument is erected, we will show a half-tone picture of it.

MY TRIP EASTWARD.

AS our readers are aware, I have been planning a tour among the bee-keepers of the East this summer. I leave here for the Buffalo convention, and will go on from that point, after the convention, to Syracuse, where is located one of our branch offices. I shall make a circle among the bee-keepers of that vicinity, taking in Doolittle, Salisbury, and others; then on through Herkimer, Otsego, and Tompkins Counties; thence on to Providence, R. I., where I am to act as judge of the honey exhibit at the State Fair, which lasts from the 6th to the 10th of September. But I shall be at the exhibit, probably, only the 7th. I shall make a flying trip, going by rail for long distances, to save time, and using my bicycle to strike intermediate points and places not directly on the line of the railroad. But I am afraid I shall have to skip by a good many of our good friends, as my time and strength will be limited.

COMMISSION SWINDLERS.

ON page 500 of this journal for last year we published the name of Martin Brockman, a commission man in Cincinnati, who had obtained from Mr. Byron Walker some \$70 worth of honey, and who either would not or could not make any returns. At all events Mr. Walker was satisfied that Mr. Brockman tried to swindle him. He now sends me information, coming from the Postoffice Department, to the effect that this same Brockman, together with George R. Dixon, A. Hess, and Chas. Cook, made up a gang whose headquarters were in Cincinnati, and who had been conducting a fraudulent business through the medium of the United States mails. Report goes on to show that they were convicted in the United States Court, sentenced, and are now serving time as follows: Brockman and Dixon, four years each, and Hess five years and four months, in the Ohio penitentiary; Cook gets thirteen months in the Cincinnati workhouse. Such news is refreshing. It is a pity that Uncle Sam could not get after the glucose-mixers in the same way. If he could, I imagine that the business of the \$12,000,000 glucose trust, recently formed, would languish for want of respectable patronage.

THE NEW TARIFF RATES, AND THEIR RELATION TO APICULTURE.

ELSEWHERE I have referred to the tariff on glucose. In looking over a copy of the Dingley tariff bill, recently enacted, I find that the tariff on honey is 20 cents a gallon, and beeswax goes free as before. White-pine lumber, of which hives are made, is subject to a duty of \$2.00 per 1000; basswood, \$1.00. The tariff on honey is, I think, unchanged. Its effect has

been, I believe, to keep out of our markets cheap honey from Cuba and Mexico. At first sight it might appear that the tariff on lumber would have a tendency to raise the price of hives; but, fortunately, there is a very large lot of lumber of good grade on the market, suitable for making hives, and this lumber is begging for a customer. It is what is usually denominated "shorts" — that is, it is lumber that is otherwise suitable for purposes of building, but too short to work to advantage on a house or barn. The very fact that the lumber-dealers are competing with each other to get rid of these "shorts" will prevent the tariff or any thing else from raising or lowering the price of hive lumber just at present.

Now, I hope that what I have said on the subject of the tariff will not be construed as having a partisan flavor. We have no room for any discussion of the tariff or free trade in our columns; and any article of that nature sent in for publication will be returned by the first mail. What is said above is neither for nor against the tariff — or, at least, it is not so intended.

DRONE-TRAPS VS. CLIPPING QUEENS' WINGS TO CONTROL SWARMING.

THE editor of the *Review*, in referring to what I said about chasing after swarms with unclipped queens, and that it was my determination hereafter to have all queens' wings clipped, whether our customers liked it or not, suggests that queen-traps will enable one to control a swarm without clipping. That is true. At our out-yard we used traps on all colonies having unclipped queens. But the perforated zinc somehow seemed to disconcert the workers, and then toward evening the bees of such colonies showed a tendency to cluster out more than on those hives having colonies of equal strength where the entrances were left unobstructed. But queen-traps are handy, "allee samee." There were two colonies at the out-yard that were so very populous, and being a little on the hybrid order, it was not practicable to take time to hunt their queens, so I just clapped on entrance-guards and let them go.

It should be said, however, in connection with the entrance-guards, that they will prevent virgins as well as laying queens from going off with the swarms. It sometimes happens, unbeknown to the apiarist, that the laying queen is superseded, and a virgin or young laying queen takes her place. In such a case, if the old queen were clipped the bees could swarm and "light out" for parts unknown; but perforated zinc would hold them — or at least there would be very few virgin queens that would get through it, and in general practice there are none at all.

R. B. LEAHY'S VISIT TO MEDINA.

R. B. LEAHY, the supply-man of Higginsville, Mo., and editor of the *Progressive Beekeeper*, on his tour among the manufacturers and bee-keepers made us a brief call here at Medina.

The Leahy Manufacturing Co., like every other manufacturer of bee-keepers' supplies,

has had this year a heavy run of business; and Mr. Leahy himself, having worked many a night up to 12 o'clock, to keep up with his correspondence, found himself needing rest and a change. He accordingly sought the scenes of his old home by the seaside. After a good rest he started on his way westward, visiting Doolittle, the W. T. Falconer Mfg. Co., and finally stopping off at the Home of the Honey-bees. From here he expected to go to Mr. Hutchinson's; from there on to Chicago to call on Mr. York, and thence run on to the G. B. Lewis Co., the Page & Lyon Mfg. Co., and other supply-dealers. Mr. Leahy will, after his whirl over the country, get a pretty good idea of the bee-supply business.

He started, not many years ago, with hardly 25 cents to his name, and is now treasurer and general manager of the Leahy Mfg. Co., capitalized at \$24,000. When Mr. Leahy started in, there were scores of other small manufacturers, nearly all of whom have since given up the business. By energy and perseverance he has more than held his own, and has built up a business of no small proportions.

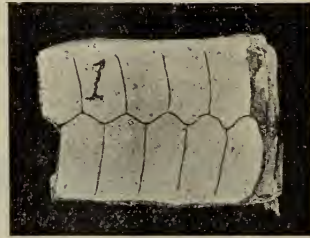
HOW BEES BUILD COMB, AGAIN; CONDITIONS UNDER WHICH THEY WILL MAKE MORE MIDRIB IN COMB HONEY THAN OTHERS.

SINCE our last issue, but before it reached Mr. Doolittle, we have received a letter from our Borodino correspondent, sending in his report of the new drawn foundation. He finds it no more quickly accepted by the bees than foundation, nor finished any sooner, and that, after being completed, it has a "resistance in cutting far greater than that built on common foundation." He winds up, "I had hoped it would be a boon to bee-keepers." It will be remembered that Mr. Doolittle was very favorably disposed toward the new article when it was first introduced; and, so far from believing it would work disaster to the industry, he expressed himself as believing it would be a great stride forward.

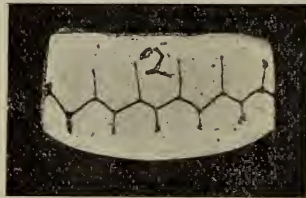
As the results secured by Mr. Doolittle were so different from those obtained by us, Dr. Mason, Burt, Iper, and others,* we began a careful and more thorough investigation. Mr. Weed and I overhauled our sections containing comb honey that the bees had made off from the new foundation; for it will be remembered that, in our eating-tests on the two different lots (see page 529), no one of our Medina folks could tell the difference between combs of honey built from drawn foundation and that from the ordinary product. We knew Mr. Doolittle to be a very careful and conscientious observer, and set about to discover *why* he should have such a different result. The drawn foundation we sent to him arrived near the close of his season; or, at least, Mr. Salisbury, living within thirty miles of him, and to whom we sent a similar lot on

the same day, reported that the season was fast waning.

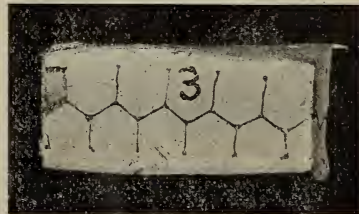
Well, in going over our sections of comb honey from drawn foundation we finally found some specimens that had heavier bases or midribs than some other lots that we had been testing, and which seemed to be all right. In order to get a better cross-sectional view of them they were placed in plaster casts, as were also pieces of worker comb built wholly by the bees, natural-built drone comb, drawn foundation *before* it had been in the hive, and another specimen after the bees had worked it out. Cross-sections were taken of each, and the results reproduced in half-tone. No. 1 shows natural worker comb without founda-



tion of any sort; but it was when the honey-flow was good. No. 2 is also a sample of worker comb built wholly by the bees. But you will observe that its walls, and especially



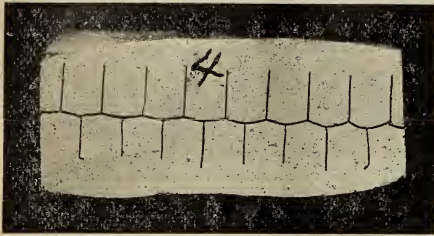
its bases, are very much heavier than those of No. 1. But No. 2 was built *after* the honey-flow, and at a time when the bees had plenty of leisure to put in a surplus of wax. No. 3 is an ordinary specimen of drone comb built



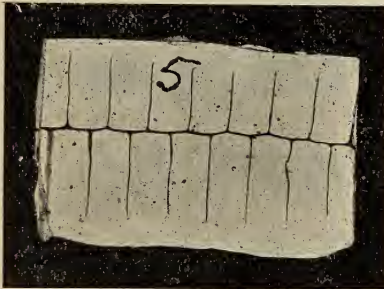
during the flow of honey, and, as we have before shown, the base and walls are considerably heavier than in the case of No. 1. No. 4 is a sample of deep-cell (or drawn) foundation from the latest dies, before the bees had done any work on it. No. 5 is the same foundation drawn out during the honey-flow. But

* Since writing this we have heard from B. F. Onderdonk, Mountain View, N. J., who says: "Have tried a section of the $\frac{1}{4}$ -inch drawn foundation, and find it perfection to the palate, and no gob."

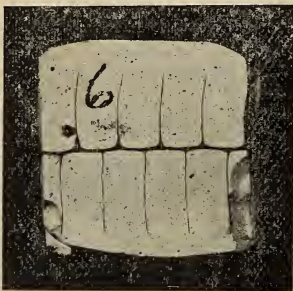
you will notice, somewhat at variance to our experience previously reported, the bees thickened the bases a trifle, and also thinned the walls near the top edges. No. 6 is comb built



from drawn foundation, as shown at 4, but it was drawn out when the honey-flow was waning, and the bees had more time to chink in a surplus of wax, just as they do in case of their own natural product, as shown in No. 2.



It will be noticed in this connection that there are times when bees make much heavier walls and bases in their comb-building than at others, and that those times vary according to the strength of the honey-flow, whether it is



on in full blast, is waning, or has stopped altogether. Bearing in mind these facts, it is easy to reconcile why Mr. Doolittle should have secured different results from those obtained by us. When we placed our deep-cell foundation on the hive, it was during a time when honey was coming in well; and it would seem, therefore, the bees used, with slight modification, any thing and every thing that had cells into which they could pile their honey, as they had not time to draw out the

ordinary foundation. In the case of Mr. Doolittle, the honey-flow was waning, and, as drawn foundation has flat bases, the bees were probably halting between two opinions—on the one side, whether they should utilize cells already drawn out, but which had *flat* bases that they didn't like, or should stop to draw out the foundation that had natural bases. As they were not able to give them an hexagonal form they did the next best thing, and filled up the corners with wax, as will be seen at 6, and to a less extent in 5.

The result of all of this goes to show that we were honest in reporting what we saw, and Mr. Doolittle was equally honest in reporting exactly what he observed. It is evident, then, that, even in deep-cell (or drawn) foundation, flat bases do not always suit the bees, and that there are times when they will try to remodel those bases by sticking in more wax, and thus making a more perceptible midrib.

Mr. Weed, who has made all of these plaster casts, and has given me all of my pointers, assures us that he can make drawn (or deep-cell) foundation, if you please, with *natural* bases. His first idea was, in fact, to make such bases; but his experiments last summer led him to believe that flat bases, when deep walls were used, were just as good as natural. But Mr. Doolittle's letter caused us to stop and scratch our heads, and go all over our experiments again more carefully; and the result is that Mr. Weed has about come to the conclusion that natural bases are better, even in the case of deep-cell foundation, and he now proposes to remodel his bases; and this, I have no doubt, he will do successfully.

I am willing to acknowledge that, in one respect at least, drawn foundation is not what we at first hoped it would be, but in only one respect, and this in relation to the matter of the bases; but if that is the only trouble we can easily remedy it.

But there is one thing we can not do, and that is to prevent the bees from building their all-worker combs heavier at some seasons of the year than at others. A few weeks from now we hope to show you samples of drawn foundation having natural bases instead of flat, said bases being just as thin as the bees make them. Probably the walls will be a little thicker near the bottom of the cells than at the top. But that makes no difference, because the bees like the job, seemingly, of thinning down the walls, for we know they almost invariably do so.

THE CONVENTION AT BUFFALO.

By using my wheel I have managed to get home just before the last form goes to press, and find I have but little space left to tell a long story. I can only say here that this session has been, if not *the* best, one of the best ever held by American bee-keepers. How could it have been otherwise? We had all the great lights, besides some who have never been with us before, or not for many years. J. F. McIntyre came all the way from California, as did Mr. B. S. K. Bennett, editor of the *Pacific Bee-keeper*. Capt. Hetherington was present with two of his brothers. Poppleton, of Florida, was on hand, and others.—A. I. R.



THE GREAT SEEDSMEN OF PHILADELPHIA AND VICINITY.

I was greatly pleased to discover the pleasant relations that exist between all of the Philadelphia seedsmen. Burpee, Landreth, Johnson & Stokes, Maule, and Dreer were all visited; and instead of clashing or conflicting, each seems to occupy more or less a field all his own. For instance, Landreth *grows* seeds on his great farm, perhaps more than any other institution of the kind in the world. Greer has the most extensive and up-to-date *greenhouses*, filled with tropical plants. Burpee is the great originator or introducer of new and improved vegetables, although all of them grow more or less in this line of work, and so on through the list.

My first visit was at Burpee's. Their large building with its many offices was, as a natural consequence, quiet and still for the most part, at this season of the year; but I could not help admiring their arrangements and appointments for doing a large business with speed and dispatch. Mr. Burpee himself was absent in Europe at the time of my visit; but I was very kindly given most complete directions for reaching Fordhook; and while I was waiting for a train at that beautiful depot, Spring Garden, I greatly enjoyed looking about me. This depot is on an elevated platform above the streets. In fact, it is almost an elevated community; and trains are coming in and going out so constantly that one wonders what it can all be for. The appointments and arrangements to prevent mistakes and accidents are most wonderful. While I was viewing these things a fine-looking young man came up, evidently in some haste, and, touching his hat, said:

"Is it my pleasure to be addressing Mr. A. I. Root?"

I smiled while I assented, and then asked him what he knew of A. I. Root, anyhow, for I considered myself an entire stranger in a strange land. He said he had just learned that I was in the city, and that I had started out to Fordhook Farm; and although he had just come from there he said it would afford him great pleasure to go right back and show me around. I remonstrated a little about making so much trouble; but he would have his own way.

All along our route I was again impressed with the beautiful surroundings in the way of homes and homelike decorations. At Landsdale, where we changed cars, on a little bit of green lawn belonging to the depot building I saw the finest piece of bedding, with ornamental foliage-plants, that it has ever been my fortune to find anywhere. It was morning, and the dew was not yet off the plants; and when my eye caught it I made a start of surprise. The center-piece was a round bed perhaps ten

feet across; then radiating from this center were ten oblong beds about the shape of a cucumber seed. They radiated from the center-piece like the petals of a flower. These beds were, may be, twenty or twenty-five feet long. The outside, next the grass, was, if I remember, a line of what I should call "dusty miller." Then came another line of dark-purple cole, and inside of this was a center of golden bedder; and the golden hue was so bright and vivid that it almost made one think of a flame of fire or a most brilliant patch of sunlight. Now, this alone would have been to me fascinating; but, sprinkled all along the dividing lines between the golden and purple cole, were geraniums, in two colors, in bloom, the deep dark red contrasting strongly with the lighter pink. The whole thing burst upon me exactly like strains of music. Why, I do not think it is too extravagant to say that, for the time being, I was almost entranced.

I wonder if there are other people like myself. I have attended great concerts, and listened to classical music from some of the great scholars, without feeling very enthusiastic; but when I was in Atlantic City waiting for dinner, after my bath in the salt water, I was startled by strains of music of wonderful pathos. I discovered that it came from a little Italian girl who was playing on some sort of accordion. She was grotesquely dressed with a quaint sort of cap or covering for her head. This covering was made of different-colored soft fabrics; and the head-dress, with the dark complexion and eyes underneath, gave me a thrill. Why, it seemed as if I never listened to strains of music more beautiful. Then when a childish voice broke in a little later, I stood drinking in the great flood of joy that filled my soul, wondering how it came that God saw fit to send these thrills to me so unexpectedly. Well, it was just the same way with that beautiful bed of bright colors, with its vivid entrancing background of green. I purposely turned away several times to see if, when I looked back again on the beautiful scene, it would give me such a thrill.

In talking with Mr. Dreer afterward about his great greenhouses he said he thought the railroad companies were doing a grand thing in the way of educating the world in general, by these beautiful "object-lessons." He said many a farmer, while traveling, had, to his knowledge, made resolves that he too, when he got home, would have a little bit of lawn and some of those handsome plants.

Now, before I take you to Fordhook Farm let me remind you that we are indebted to W. Atlee Burpee for some of the most popular and valuable vegetables now known to the world. First, and perhaps best, Burpee's bush lima bean. Why, we hardly sell pole limas now at all since this has become to be well known. Burpee's Sure-head cabbage has become a household name, almost; and the self-blanching celery, introduced in 1884 — why, what would the world do without it at the present time? We might say almost the same thing of the Emerald Gem melon. The white Victoria onion has been one of our favorites for

bunching, for many years. Burpee's Extra-early potato is almost a standard in many localities; and the Matchless and Fordhook Early tomato and Breadstone turnip are things that seem to have come to *stay*.

On the way to the farm I told Mr. Earl, my companion, how long I could stay in Philadelphia, and the places I wanted to visit. He said, as did friend Selser, that my stay was altogether too short; but that, if I insisted on carrying out my program, I had better leave my wheel at the station, and he would get a rig and give me at least a glimpse of what they had to show, in the shortest time possible. I do not know but I did express my surprise that Mr. Burpee should leave his entire plant in charge of a man so young as my companion—a boy, almost. In fact, he told me he was only 27 years old. I soon concluded, however, that Burpee's head was level in selecting a general manager. By the way, in our own work at home, a great many times old and trusty men have felt deeply grieved because some younger one was promoted and put over them. Dear friends, we who manage business often think of this. But God has seen fit to give some people special talents; and, even though it hurts to bow our head in submission, it is the right and proper thing to do.

I was first taken into the office and shown the books of record. Those who have undertaken to test and compare new fruits and vegetables know something of what a task it is. Different foremen on Burpee's farm make it their business to plant the seeds, watch and care for the plant, study its habits and peculiarities, and note it down in an appropriate book. This is not done for only one season but a series of seasons. Nothing is put into the catalog until it has stood the test, and found to be beyond question superior to the old sorts. You may inquire why it is that we have fifty or sixty varieties of peas, and other things accordingly. Well, it is a hard thing to drop an old variety. In cutting down our catalog I have several times decided to drop such and such things; but I have learned that there is sure to come a wave of disapproval when I decide to rule out almost any thing that has been previously cataloged. If it is not somebody in Florida who has found that very thing just suited to his locality, it is somebody out west or down east or up north.

Of course, the flower business, which is the great specialty at Fordhook Farm, was rather out of my line, although I did greatly enjoy looking at the beds of the new Sunset large-leaved coleus. At Fordhook Farm, things are arranged mostly for testing varieties or for growing seed; therefore I did not find much that stirred me as did that ornamental bed by the railway station. A field of mixed verbenas, just in full bloom, was a most pleasing sight. Just imagine a buckwheat-field, one of the whitest you ever saw, with the flowers of all colors of the rainbow, and you would get the effect. Of course, sweet peas were a grand sight, for Mr. Burpee is one of the greatest, if not at the head of the sweet-pea growers of the world. I greatly enjoyed looking over a field of tomatoes grown expressly for seed and

nothing else. Some of them were just beginning to color at the time of my visit. I saw a spring, or little run, where they wash the seeds from the pulp, in getting the seed ready for market; and I smiled as I asked my friend if that was where the ducks formed habits of intemperance.

"Yes, Mr. Root, that is where the ducks got drunk; and we were sorely puzzled for a good while to know what ailed them, and what made them die, until somebody suggested that the pulp the ducks were feeding on had fermented until it was intoxicating."

Yes, it was indeed true. The ducks not only learned to get drunk, but, instead of profiting by experience, as soon as they recovered enough to get back to the stuff that was killing them they got drunk again and again until they actually died. Finally their owner was absolutely obliged to fence them off and permit them to have access only to the fresh tomatoes from which the seed had just been taken. We may pardon the ducks, because they are only dumb brutes anyway; but what shall we say of human beings, made in God's own image, who follow their example? Burpee keeps abreast of the times by offering for sale every thing worthy of being cataloged, and I believe he sometimes offers for sale some things that are not worthy of being cataloged, were it not that they have already been widely boomed. For instance, in his catalog for 1897 he says of sacaline, "It is comparatively worthless as a forage-plant in America." However, he offers it to any who want it, for 10 cts. a package. After describing *Lathyrus sylvestris*, or flat pea, he says: "As a forage crop it can not compare with Indian corn, cow peas, etc."

I was much pleased with another notice, to the effect that visitors were always welcome on any day *except Sunday*.

Burpee not only grows flowers, but he is an enthusiast on fine poultry; and his poultry-houses and yards are the most perfect in the way of cleanliness of any thing I have ever found. Why, you could sit down and read a book right where the fowls roost, and not notice any unpleasant smell. I presume this is managed by cleaning the houses every day, and by the proper use of dry dust as a deodorizer. His kennels for collie dogs are also models of cleanliness and good taste. It seemed really too bad, however, to keep the intelligent little fellows shut up when they begged so piteously to get out. When I asked the price of some of the good-looking little puppies they said they were already sold at something like ten or twelve dollars apiece, and some of them are sold before they are born.

Although I did not have the pleasure of meeting Mr. Burpee himself, I was very agreeably entertained by Mr. B.'s bright and intelligent sister, the manager's wife, Mrs. Earl, and the little ones of their pretty home. And, by the way, right by this home, and, in fact, with its branches spreading clear away up above and over the roof, is one of the largest basswood-trees I ever saw in my life; but, strange to tell, they have never noticed any honey-bees around it when it has been in full bloom. I

wonder if there are no bee-keepers around Fordhook Farm.

OUR NEIGHBORS.

And as ye would that men should do to you, do ye also to them likewise.—LUKE 6:31.

I told you of the many attractions constantly exhibited at that great bathing-place, Atlantic City. Prominent among them was the comparatively new vitascope, a most wonderful invention in optics. It really amounts to a photograph of living *moving* figures. Here were perhaps a dozen or more of these instruments, each one having different subjects. Friend Selser and I looked at a few of them; but several of the subjects that I knew by reputation, and some I had seen in different cities, I told him were, in my opinion, unfit for any one to look at. It gave me pain to notice these were the very ones most patronized. While we were standing near one of the places of exhibition, friend Selser met an acquaintance; and while they were talking I looked about me, and especially studied with deep attention the great throng of humanity then on every side, for it was toward the middle of the day. Right near me was one of the vitascopes, labeled "Working the Typewriter," or something similar. I had avoided it before, for I knew something of what it was; but this one, judging from its shopworn look, had been handled most of all; and while I was waiting I thought that perhaps it would be a good plan for me to investigate and see just *why* this one attracted more attention than the others. I dropped my nickel into the slot, and commenced to turn the crank slowly, according to directions. The scene was a business office—clerks hurrying here and there, typewriters flying rapidly, boss giving orders, etc. In the foreground was a very pretty girl hard at work with a typewriter. A good-looking man with gray hairs and gray whiskers sat near reading a letter. In the opening scene there were quite a number of clerks in the office, as I have told you; but one by one they seemed to take their departure. Perhaps it was toward the closing hours of business. Finally the pretty girl and the boss were alone. He hitched his chair a little nearer to his clerk. Pretty soon, looking about, evidently to see that the room was empty, he patted her on the cheek; and it was not long after that before they were exchanging kisses. At length she stopped her work and put her arms around his neck, he likewise clasping her as if he might have been her father, and she a girl of ten or twelve. Her looks, however, indicated her to be twice that age. Just about this crisis a middle-aged fine-looking woman was seen cautiously coming into the room with noiseless steps. She came unperceived until she stood over the guilty couple. The girl, in her fright, jumped up and retreated, while our friend with the gray hairs went down on his knees before his indignant wife, and in a most humiliating way begged to be forgiven, no doubt promising

that such a thing should "never happen again."

I presume some time and money were spent in getting up this little tableau or theatrical, or whatever you may want to call it. The look of righteous indignation which shone from the fine-looking woman's face seemed as if it could hardly have been put on. Then the shamefaced, cringing manner of the gray-haired sinner, and his more youthful companion, the typewriter girl, was *more* than reality. The woman listened to her husband's apologies and promises with some softening in her countenance, but she turned about and glared at the typewriter girl, shaking her fist at her meanwhile, and saying by her looks, plainer than any words could say it, "As for *you*, you good-for-nothing hussy, see that you never darken the doors of this office again;" and that was the finale. If you were to turn the crank any further you would commence over again with the office full of clerks, and every thing in proper decorum.

Now, you may wonder why I go over this. Perhaps almost everybody has seen it. They pay their nickels and have a big laugh, and tell their friends about it, and it is (or doubtless was) the funny thing of the season. Let me digress a little.

To fill out my program of visiting a number of seedsmen and their grounds at Philadelphia, friend Selser said we should have to do quite a little traveling. When we got on to the trolley-cars, to make any thing of a trip he got permission to put me in front beside the driver, and it was a rare treat indeed. I not only saw the wonderful sights of the great city as friend Selser pointed them out, but I received a great deal of information in regard to the rules and regulations for running electric cars. Almost constantly, especially during the busy part of the day, on Market and Chestnut Streets, the crowd would be so great that it seemed as if somebody would certainly be hurt; but I did not see an accident. At the crossing of the car-tracks the cars follow each other so closely that a novice like myself would think there *must be* a collision. At one time our car was going down quite an incline. At the bottom of this incline another car-line crossed ours at right angles, but there was scarcely any slacking up in order to pass. Our car went down the hill like a shot; and when within a very few feet of a car loaded with human beings it would slack up just enough to let said car whizz by. Sometimes it seemed a question as to which driver had the right of way; but I was told there were rules governing this thing, and that the drivers rarely or never made a mistake. Two cars would approach each other as if they were going to collide, with terrible consequences; but one would always slacken up just enough (and no more) to let the other glide out of the way.

Now, if you please, let us suppose that one of the drivers—the one going down hill, for instance—were a vicious man. Suppose he should run into a carload of passengers—possibly a family of little children. Suppose he were to smash the car into splinters, and throw

the maimed and dying to the right and left, crippled for life, and perhaps crippled and maimed himself. Now, suppose this man should say he did it for *fun*—for a joke—what would be thought of him? Why, I am afraid they would lynch him as they have been doing lately, in terribly extreme cases. If he were to try to get out by saying he had suddenly become crazy, I do not know but community would think *such* a crazy man should be put where such a craze would never get hold of him again. If anybody should laugh at the occurrence, pretending he thought it was *funny*, this fellow would be in danger also. If our laws are not always thoroughly enforced, the one who undertakes to trifle with human life in the way I have described will pretty soon find there are officers, and public opinion back of them. Let us now go back to that little scene, the vitascope.

This gray-haired man, a gentleman and a scholar, possibly the proprietor of the establishment, deliberately plans something *worse* than the crazy motorman of my imagination. He wrecks a home—yes, oftentimes makes a worse wreck than will result from broken limbs and mangled bodies. This good-looking young woman, so skillful with her typewriter, deliberately consents to be a party in making this wreck and ruin. I do not put so much blame on her, because I think the man (or the person who is *supposed* to be a man) is as a rule by far the guiltier one of the two. He coolly and deliberately breaks his marriage-vow. He knows the consequences; and, in fact, if any one should presume to trifle with his wife or daughter in the way he is doing, he would very likely consider himself excusable for taking the law into his own hands. If he used a revolver, our courts would almost call him excusable. Oh what inconsistency! what a terrible thing is sin or Satan when it or he enters the human heart! Do you say that I am moralizing on a play in a vitascope, and that no such thing ever happened? Dear me! just take up one of our dailies and read a single issue. Men, and women too, and men who are *not* crazy, deliberately crash into and break up a family, estrange husband and wife, send the children out homeless and friendless, to care for themselves as best they can, or let the poor mother drag along and support them alone. If we were not as a people losing proper respect and reverence for the sacred institution of marriage, divorces would not be coming as thick and fast as they are nowadays.

Let us now go back to the bathing-ground, with its hundreds and thousands in their costume that has been so much condemned. It may be a dangerous place for both sexes; but, in my humble opinion, it is not a tenth part as dangerous or as bad as a business office where a man (no matter what he professes) spends many hours alone with no companion but a pretty young woman to manipulate his typewriter. I believe that men and women should work together, but not two solitary persons of opposite sex and not related. I do not believe very much in private offices. Let your business affairs and all your communication with your fellow-men be of such a character that

you have nothing to conceal from the eye of God or from the eye of man. The bathing-resorts are comparatively safe—at least what I have seen of them, because there are such crowds all around us. I accidentally found out that policemen are stationed at every hand; and any indecorum, even if it be accidental, is promptly looked after, and the offender taught a lesson. I have often thought of paraphrasing this beautiful golden rule that I have chosen as my text. In fact, some of the experiences I have passed through in this life that God has graciously seen fit to give me to live have made me meditate often on this paraphrase, and I think I will put it something like this: As ye would that men should deport themselves toward your daughter, sister, or wife, both in act, word, and in thought, do ye also likewise to every other man's daughter, sister, or wife, in act, word, and thought.

The great wide world seems to think that lapses from virtue in the direction I have indicated are only a thing to laugh at; but, may God be praised, of recent date once in a while things of this kind are beginning to be recognized in their true light. Parnell, with all his scholarly attainments, wealth, and position, did not succeed in getting mankind (and especially *womankind*) to look at his sin and crime as a joke; and I for one protest against the custom of laughing and making merry over things of this kind, or in passing them off as a joke, or even as a funny thing in any sense of the word. It makes me sad to think so many people will look at this particular vitascope picture, and advise others to look at it and laugh. Let us remember the old-time fable of the boys pelting the frogs—"It may be fun for you, but it is death for us."



HIGH-PRESSURE STRAWBERRY-GROWING AND SUB-IRRIGATION.

Under this head I expect to tell how everybody can raise strawberries. If you live on a farm, of course you have ample facilities for growing them by the acre. But an acre is almost too great an area to be employed in *high-pressure* strawberry culture, unless, indeed, you expect to hire help. What I have in mind more particularly just now is for people who have just a garden—say a small garden. But if you haven't ground enough for a garden, and have only a few rods where you can get sunshine, you can grow wonderful strawberries even there; and if there be such who read GLEANINGS, who have not even a few rods, if they have even a few *yards* of ground where the sun may shine a part of the day, and where the plants may get the benefit of the summer showers, they may have much enjoyment and much delicious fruit, even with

a few yards. Almost the only condition is plenty of daylight. During mid-summer, very fine strawberries may be grown entirely in the shade; but during the rest of the year it is much better to have the sunlight.

Few people are aware of what wonderful things can be done with strawberries where they are provided unstintedly with water and plenty of fertility. You need not urge that it will not pay; for if you get interested in the matter, I think the *enjoyment* will almost pay you, to say nothing of the luscious fruit; and then the pleasure of being able to astonish your friends by showing them strawberries as large as small-sized hen's-eggs, and almost as perfect in shape, which you may do with some of our finest new varieties!

To commence with, we must have sub-irrigation; and when you succeed in managing sub-irrigation for strawberry-plants you have the matter fully in hand so you are ready to apply it to almost any other crop. You may commence on a very small scale at first — in fact, I rather prefer you should do so. When you make a success of this small scale you can easily enlarge it as much as you choose. Perhaps the present month of September is as good a time to start as any, for we can now lay the foundation for great bushy plants to furnish us quantities of immense berries next spring. For sub-irrigation you must have some sort of bed or box that will hold water; and you can start the business very well with a large-sized common wash-tub, if you do not like to go to the expense of making a water-tight box. A tub would be rather deeper than is necessary, but it will illustrate the plan. Provide some good finely sifted garden soil — enough to fill the tub a third full. Then get some old well-rotted manure, old enough so you can work it through a coarse sieve. Such a one as is used for screening coal ashes will answer very well. Have equal parts of garden soil and sifted manure. A little clean sand and some swamp muck will help make a nice compost if you have materials handy. Set a common drain-tile on end at one side of the tub, and fill in with the compost. Now you want a strawberry-plant. The plant should be a young one; but if you can not find a young one, almost any strawberry-plant will do. But I would start with a *potted plant* (see cut) of one of the very best of the new varieties, because it is just as easy to propagate high-priced plants as low-priced ones. Set the plant in the middle of the tub. Let your tub stand where it can get both rain and sun; but should there be a *very* heavy rain so as to endanger filling the tub with water so it rises above the soil, the tub must be covered — that is, when the soil is wet

enough. If it does not rain, pour water into the tile until it rises and stands say two or three inches below the surface of the soil. This water underneath will always keep your soil damp enough. But do not water your bed *every* day. Air through the soil at intervals is as important as water at intervals.

If the weather should happen to be dry and warm, evaporation will take away the water until it sinks in the tile almost to the bottom of the tub. When it gets down say within an inch of the bottom, then fill it up to within an inch or two of the top; then let it gradually sink down again. If you have rain every two or three days you will not need to water your little bed at all. But keep watch of it, and do not let the plants get drowned by *too much* water, nor dried out by lack of water. When the plant gets to growing vigorously it will put out runners. Spread these out like the



A POTTED STRAWBERRY-PLANT JUST BEFORE IT BECOMES POT-BOUND.

spokes of a wheel, and let them take root. But a better way is to plunge a little pot, say two inches in diameter, down to the surface of the soil, and make the plant take root in the center of the pot. This enables you to move your young plants without having them stop growing. Above is a cut of a potted plant when the roots have filled the pot so that it needs to be taken out and given more room.

What is meant by "pot-bound" is letting the plant remain until the roots have so filled the pot that they become cramped and stunted. If you start plants in pots you must be sure to take them out before they become pot-

bound. The plant, with all the soil adhering to the roots, is easily removed from the pot by turning it over and striking the edge of the pot a smart blow on some solid body—the edge of the tub, for instance. When your plants are ready to come out they should be put out in a similar tub, and placed at least three or four inches apart. If you want them to bear fruit they should not stand nearer than six inches. If you are going to keep the runners cut off, and grow them in hills, they ought to be planted as much as two feet apart. The largest and finest berries are grown by the hills system. This has been fully described in our strawberry-book.

Now, in the above you have the whole thing in a nut-shell. Sub-irrigation is certainly the way to grow strawberries. The objection to it is the expense of having water-tight beds. You can probably make a wooden box much cheaper than a tub; and if you are going to make a box it ought to be large enough to take for a cover a common-sized hot-bed sash, the regular run of these being 6 feet long by $3\frac{1}{2}$ feet wide. This box can easily be made sufficiently water-tight of lumber well nailed together; but it is generally considered cheaper to take less pains with the lumber and the carpenter work, and make the joints tight with water-lime cement.

There are many opinions in regard to the depth of soil needed to grow plants; but I believe four or five inches is deep enough. Perhaps you had better have six inches of soil and manure. With the glass sashes I have spoken of you can protect the plants from frost, and have strawberries one or two months earlier than you can get them in the open air. The sash can also be used to keep off surplus rain when observation shows you there is enough in the bed. For a bed 3 by 6 feet you will want at least *two* tiles—one in opposite corners; and if you expect to neglect your bed, and let it get full of water during some heavy rain, you will need a hole bored down close to the bottom, with a cork to stop it up. But I do not like this arrangement. Whenever you let water off because you have so much as to drown the plants, you are leaching away the fertility of your soil. That is the way we do in all outdoor farming and gardening, but it is a bad way nevertheless. A small quantity of manure will do a tremendous lot of fertilizing in growing plants if we never permit the fertility to be leached away and washed away by excessive rains.

Well, after you get your sub-irrigating strawberry-bed, 3 by 6 feet, to working nicely, you are ready to try a larger one. Your bed may be 6 by 6 feet, so as to take 2 sashes, or it may be 6 by 12 so as to take 4 sashes; or you may have it 6 by 50 feet so as to take 14 sashes. That is the size of bed we use in our high-pressure gardening. I would not have it more than 50 feet long, because you have to carry the sash so far when you pile them up at each end of the bed. You will find cuts of these beds in our tomato-book.

"But can we not," somebody is always inquiring, "practice sub-irrigation outdoors?" We can; but a heavy rain is sure to fill up our

beds and necessitate drawing off the water. It works all right in a greenhouse where you have control of the water supply; but I do not know how sub-irrigation can be made a success in the open air unless you arrange valves to be opened to let the water off when there is too much of it; and the water that comes out of these valves will show by its color that it is carrying away the fertility of your manure. And is not this an objection to *all* kinds of underdraining? Yes, my friend, it *is* an objection; but it is much better than to have the plants drowned by a surplus of moisture. These water-tight beds are expensive, I know; but for high-pressure gardenwork they are almost a necessity. When you have them nicely arranged you can push strawberry-growing or any thing else right through the most severe drouth; and with the sashes put over your plants, you have nothing to fear in the way of frosts. I suppose, however, such arrangements will be particularly used for supplying yourself with extra-strong vigorous plants to put in the field, say during August and September; and if he plants are of some new variety that commands a high price, you can push your propagation without regard to what the weather may be.

These plant-beds should stand exactly level. If they do not, the water you introduce through the tiles will settle to the lowest point, and you want it disseminated equally all through the bed. With beds say 50 feet long or less, two lines of tiles should run the whole length of the bed. These are laid in cement, and the joints closed half way up the diameter of the tile. With this arrangement the water may be introduced, say, at each end; and you will in time moisten the soil equally the whole length of the bed. Now, while the bottom of the bed is on a dead level to facilitate even watering, the sashes should have an incline when placed on top of the bed, so as to carry off the rain water; therefore the north side of the bed should be an inch or two higher than the south side.

OXYDONOR, ELECTROPOISE, AND OTHER LIKE HUMBUGS.

One of our readers asks us if the New York and London Electric Association, with its electro-magnetic hair-brush and comb, and other things, is after the same stripe as the Oxydonor. We sent for one of their circulars. Just half a dozen lines of their claims tell very plainly where they belong. And let me say in general, when you get hold of any circular containing such unmeaning harangues, set the party down at once as a fraud, without reading any further. One of their traps they claim will cure cold feet, and they start out with the following: "We will answer the question in simple language. In the first place, the human body is an electric battery, the upper half being positive and the lower limbs negative." Exceedingly "*simple*," is it not? Electricity is getting to be a matter of every-day fact to too great an extent for anybody of intelligence, or even good average

sense, to be humbugged by such statements. In regard to their electric hair-brush, which cures "nervous or bilious headaches and neuralgia, prevents baldness, and falling-out of the hair, cures and prevents dandruff and all diseases of the scalp," they make the following statement: "The brush is permanently charged with electro-magnetism in manufacture." I do not exactly understand why these charlatans, the whole tribe of them, have the same lot of meaningless set phrases and absurd statements that they keep harping on over and over again.



LARGE ORDER FOR FOUNDATION-MILLS.

During the past month we received from Russia the largest order ever booked for comb-foundation machines. It calls for six 14-inch, twelve 12-inch, and twenty-four 10-inch mills, besides a lot of other goods.

TUPELO HONEY FROM FLORIDA.

We have about 1000 lbs. of very fine tupelo honey from Florida, in three barrels, which we offer at 6 cts. per lb. for the lot. We shall be pleased to mail a sample free to intending purchasers; to others for 5 cents.

The honey is light amber in color, and has the same peculiarity as California sage honey in that it remains liquid in cold weather. This makes it desirable to those who put up honey in glass to retail.

HONEY MARKET.

We are having a fair demand for honey, both comb and extracted. We hear frequently from bee-keepers who are developing their home market, and who have sold all their honey and need more. We are very glad to be of service as a medium of exchange between those who have a surplus and those who have not enough to supply their home demand. So far we have sold honey, especially comb, as fast as we have secured it. We have several places in view where we can use more to good advantage. If those not too far distant, having honey to sell, will write us, telling how many cases of each grade as graded on page 566 of current volume of GLEANINGS, the size of the cases, whether our make or no-drip, and the price at which you hold it, we may be able to help you dispose of it quickly to good advantage. In the case of extracted honey, send a sample bottle by mail, and tell what kind of package it is in, the number of packages, and the price you expect.

We offer water-white California honey, in 60-lb. cans, two in a case, at 6½ cts. per lb.; light amber at 6 cts. Large lots quoted on application. Samples free by mail to prospective customers. To those who would like to see a sample and compare it with their honey we will mail samples for 5 cts. each, the cost of the package.

Fancy comb honey, in 100-lb. lots and upward, 13 cts. per lb.; No. 1 at 12 cts.; less than 100 lbs., 1 ct. per lb. more. Large lots quoted on application. Correspondence solicited from those interested.

HONEY-LEAFLETS.

Perhaps no offer which we have made recently has been more popular than our offer to furnish honey-leaflets to our readers and customers up to 500 at simply the cost of mailing them. An edition of 25,000 was gone in five days; the next edition of 14,000 was hardly dry before it was all gone. The third lot, of 31,000, was used up in three or four days. By the time this issue is mailed we shall have sent out over 100,000 of these leaflets. We are glad of the privilege of contributing so much to bee-keepers to develop a larger use for honey. If all these leaflets are judiciously distributed it is impossible to estimate the amount of influence they will have in increasing the demand for honey. We are preparing the leaflet in a more convenient form. It will be a folder, the right size to slip into an

envelope without folding. It will also be provided with space on the front and back pages for printing the address or advertising card of the one who distributes them. We have had a call for them in this way. We will book orders for this style of leaflet at \$1.00 per 1000; 5000 for \$4.00; 10,000, \$7.50; \$1.00 extra for your address and business card on one page; \$2.00 extra for both first and last pages printed special. We shall not have these ready for two or three weeks; and if there are any recipes, tried and found good, which are not in the present leaflet, we should be pleased to have you send us such at once. Here is one which has been tried and found excellent:

HONEY-DROP CAKES.

1 cup honey; ½ cup sugar; ½ cup butter or lard; ½ cup sour milk; 1 egg; ½ teaspoonful soda; 4 cups sifted flour.

Our offer to give away leaflets was only for the month of August. We shall be pleased to sell them to those not already supplied, or who may need more, at the regular prices, which barely cover cost: 100, 20c; 250, 40c; 500, 75c, postpaid; 75c per 1000, sent at your expense with other goods.

GLEANINGS AT REDUCED RATES.

New subscribers sending us \$1.00, or subscribers who have paid up all arrearages, and send us \$1.00 before their subscription expires, will receive a copy of the A B C of Carp Culture, 70 pages, price 40 cts., postpaid, the pages the size of these; or we will send, in place of the carp-book, one copy of Winter Care of Horses and Cattle, by T. B. Terry, a book of the same size as the carp-book, 44 p., price 40 cts., postpaid; or in place of either one of the two we will send Maple Sugar and the Sugar-bush, a book of the same size, costing also 40 cts., postpaid. Remember, in order to get one of these valuable books all you have to do is to send \$1.00 for GLEANINGS, and 5 cts. postage, and we will give you one of them free. An old subscriber, to be entitled to this offer, must pay up all back subscription, if any, and send in \$1.00 for a year in advance, with 5 cts. postage.

Special Notices in the Line of Gardening, etc.

By A. I. Root.

GARDENING FOR SEPTEMBER.

Now is the time to put in American Pearl onion-sets. We have a nice stock; also Prizetaker sets and White Victoria. The two latter have succeeded nicely when put out at the same time as the American Pearl. The ordinary white and yellow sets, however, do not seem to stand the winter as well. Prices of any of the onion-sets mentioned above, quart, 20 cts.; peck, \$1.00; bushel, \$3.50. Larger sizes, such as are used for pickling-onions, half the above prices. These will also do for planting out in September, but they are more disposed to send up seed-stalks than the smaller ones. White Multiplier and Whittaker onions, large sizes, that will split up into small ones if planted now, quart, 10 cts.; peck, 75 cts.; bushel, \$2.50. Small sizes, that will make large onions next year, quart, 20 cts.; peck, \$1.00; bushel, \$3.50.

At the present price of wheat, over \$1.00 to-day, August 23, I do not know but we could almost afford to grow wheat on our vacant ground for high-pressure gardening. Nice potatoes are also still worth \$1.00 a bushel; apples ditto. Don't let your ground be idle. Get in crimson clover, rye, wheat, onion-sets, or something else. It looks at present as if there were going to be a demand for almost every thing we raise, and at very good prices.

POTTED STRAWBERRY-PLANTS WITHOUT THE USE OF POTS.

In connection with this new material, jadoo fiber, we have made a discovery which is, I think, of considerable importance. With the fiber, as I have told you, the pots very soon become filled with roots; and if you are not on hand to slip the pot out, and let the roots expand off into the soil, your plant is injured by becoming pot-bound. Now, my discovery is this: Have a piece of iron turned up in a lathe, so one end is just the shape of the inside of a two-inch pot. Take this iron bar and strike it in the ground after you have pushed the strawberry-runner aside, and you will have a cavity in the soil just like that in a pot. Fill this cavity with moistened jadoo fiber. Push down the runner exactly as if it were in a pot, and then the

plant will never become pot-bound, because the roots will push off into the soil as soon as they have gone all through the jadoo fiber. In a week or ten days, loosen the soil around your plant with a trowel, and then you can lift the plant right out, taking the jadoo fiber along with it. Send it off by mail or express, or plant in your own ground as you please. For use we mix the jadoo fiber in water until it is a sort of mush. You can ladle into the holes in the ground with a large-sized table-spoon. By this means you have no pots to bother with, and the plants are never pot-bound, and yet they have fertility enough attached to the roots to give them a nice start in "housekeeping," when they are put out in the field. Very likely some other material or compost might answer as well as the jadoo fiber, but we have never found it. If you want to see what jadoo looks like, just order one of our strawberry-plants by mail, or we can furnish the material at the following prices, which have been fixed by the manufacturers: 5 lbs., 30 cts.; 10 lbs., 50 cts.; 25-lb. box, \$1.10; sack, 120 to 130 lbs., 3 cts. per lb. It may be shipped either from here or Philadelphia, Pa. The material is so light that a single pound goes a good way.

We are prepared to ship promptly by mail or express, charges prepaid, any of the plants mentioned on pages 573, 4, of our issue for August 1.

Below is one of the many reports from one who has tried some of our "new process" strawberry-plants which he received by mail:

The plants arrived in excellent shape, and were set out the same evening. At this writing seven have runners, which I have potted; the other three plants, runners, are just visible. ALBERT M. COLE.

Providence, R. I. Aug. 19.

THE IMPROVED AMERICAN COFFEE-BERRY.

In our price list I have told you that this is something quite different from the soja bean, which it very much resembles. The objection to the soja bean for coffee is that it has a disagreeable flavor of beans or peas. Well, the coffee-berry we had last year had something of this flavor still, which made it objectionable to many people. A short time ago, however, a sample was sent me of a smaller-sized coffee-berry, saying it was a variety that matured so quickly that three crops could be grown in one season in Missouri; and, furthermore, that I would find by test that it was harder to detect from the genuine than anything heretofore offered. This I find true, and, in fact, I should pronounce it excellent coffee. I do not think I could tell one from the other—or, at least, the coffee-berry would be fully as pleasant and agreeable to me as the genuine coffee. I have obtained coffee berries from different seedsmen, and we are growing them in our test-grounds. There are at least half a dozen different kinds. I was, however, so well pleased with this latter small kind that matures so quickly I at once made a purchase of two bushels like the sample, and we shall offer only this for sale, throwing away the kind we sent out last season. I am sorry for this; but the new smaller seed is so great an improvement that it will pay us all to do this. As to whether it is equal to real coffee or not, I think you had better all decide the matter for yourselves, and you can easily do it with a five-cent package. The price of the improved quick-growing coffee-berry is 10 cts. per ½ pint; pint, 15 cts.; quart, 25 cts.; peck, \$1.75. If wanted by mail, add 10 cts. per quart extra for packing and postage.

KIND WORDS FROM OUR CUSTOMERS.

Every time I order goods I am more and more pleased. Next year I intend to purchase more foundation, and use it entire in boxes, and also in some frames. XAVIER PICQUET.

Sainte Marie, Ills., July 27.

The foundation is wonderful, and it is hardly possible to believe it was made by machinery. I hope you will send me the strips soon. H. J. BROMWICH.

Angola, Erie Co., N. Y.

I had no income from my bees from 1893 until this year, and even now the drouth has ruined my berry crop. But the fact is, I can not afford to part company with a man who has such a real love for turnpicks. Beloit, Wis., Aug. 4, 1897. P. E. MARSTON.

The samples of drawn comb are at hand. Thanks. I am much pleased with their appearance, and can see no reason why this article should not prove to be all you claim for it. B. WALKER.

Evart, Mich., July 31, 1897.

Your brood foundation and starters for sections, shipped June 2, are of excellent quality, and cut to good advantage. Goods received all right. Thanks to the A. I. Root Co. ALFRED JACKSON.

Jackson, Ohio, June 22.

Since I have been in the bee business I have bought over \$100 worth of goods from you for myself and others, and I have always found your goods to be the best and cheapest in the long run. JOE C. MOORE.

Globe, N. C., June 14.

The queen came to me the 17th of May in good condition, and is a perfect beauty. She has to-day, June 26, the hive full of beautiful Italian bees, and I am well pleased. A. BARNEY.

Seattle, Wash., June 26.

The goods I ordered this spring came to hand in due time, and are very satisfactory. The extra-thin surplus foundation is very fine. The bees take to it promptly. The Corneil smoker is just *boss of the bees*. The cream sections are also very good. Please accept thanks. GREEN R. SHIRER.

Green, Iowa, June 26.

Mr. Root.—I wrote you, night before last, that I had received the strawberry-plants, and to-day I received a statement and ten cents in stamps. You certainly conduct your business honestly, and give every one his due. I did not expect you to take all that trouble to return that little, and, in fact, did not know that I had sent too much. The plants are growing right along; have never drooped, and two of them are putting out runners. JOE L. COOPER.

Nashville, Tenn., July 17.

I am a young bee-keeper, and am desirous of trying the new foundation, so I have ordered a small sample. My year's supplies, ordered from your branch office at Mechanic Falls, I think the best I have seen. The Weed foundation is perfection. I wish I could afford to use full sheets on every frame in my new hives.

I must say a good word for GLEANINGS. I read every word in it, and wish there were more. In practical hints it has been worth more than \$5 since I began to read it. EMERY D. BICKMORE.

Stockton Spring, Me., June 7.

25 Cts. PER YEAR!

for the best agricultural and stock-breeders' paper published,

Stuart's Agriculturist.

Agents wanted! Bicycles, etc., free. Address

WHITWORTH BROS.,

Printers & Pub'rs, 60 High St., Cleveland, O.

Please mention this paper.

WANTED.—To sell 100 colonies of bees; ten-frame simplicity hives, mostly wired frames, combs all built on foundation, equipped for comb and extracted honey, every thing fixed for migratory work, can load 30 hives on rack and go any time, every thing on the most modern improved A. I. Root plan, well put up and painted. Bees scarce around here. White clover enough for 5000 colonies. Best of range for out-apary. I have got to sell on account of climate.

E. Sanford & Son, Nokomis, Ill.

Queens.

Untested queens, 50c each; tested, 75c; Breeders, \$2. Either leather or golden. My golden breeders breed all 5-banded bees.

W. H. LAWS, - Lavaca, Ark.

Central Pennsylvania Bee-keepers!

Buy Root's supplies near home at catalog prices. Observatory hives, winter cases, etc. Also send for catalogs.

Prothero & Arnold, Du Bois, Pa.